MARINE REVIEW

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LAUNCH OF STEAMER JOS. G. BUTLER, JR.,

JOS. G. BUTLER 3D.
Revolutionary war

The weather was most auspicious and all other conditions as favorable as the most fastidious could desire, when the steel freight carrier Joseph G. Butler Jr., was launched last Saturday afternoon at the Lorain plant of the American Shipbuilding Co. The launch of this steamer was but a duplication of the score or more of large lake freighters which have been dropped into the water by the shipbuilding company with the past year, but there was a particular significance pointing as it did to the closer relations in a business way between the consumers and carriers of iron ore, the leading commodity carried on the great lakes. Generation after generation since the time of the the ancestors of Joseph G. Butler Jr., for whom the boat launched Saturday was named have been in the iron business. When the big 10,000 ton ship glided gracefully into the waters of the slip at Lorain Mr. Butler witnessed not only one of the final steps in the completion of one of the most modern carriers on fresh water, but also one step of a record breaking feat in ship construction. This ship was ordered for delivery at the opening of navigation 1906. The keel was laid Sept. 6, last, 55 working days before the boat was launched. The builders have promised to deliver the Butler complete and ready to go into commission Nov. 25, eleven weeks from the time the first work was started, and in time to make one trip before the close of the season this year. This record is even more remarkable than that made on the steamer John Stanton, which went into commission Oct. 10, although the contract did not call for delivery until next spring.

JOSEPH G. BUTLER JR.

MRS. E. L. FORD, J. G. BUTLER JR., MISS JOSEPHINE BUTLER FORD.

The Joseph G. Butler Jr., measures 545 ft. over all, 525 ft. keel, 55 ft. beam and 31 ft. deep. She will have 32

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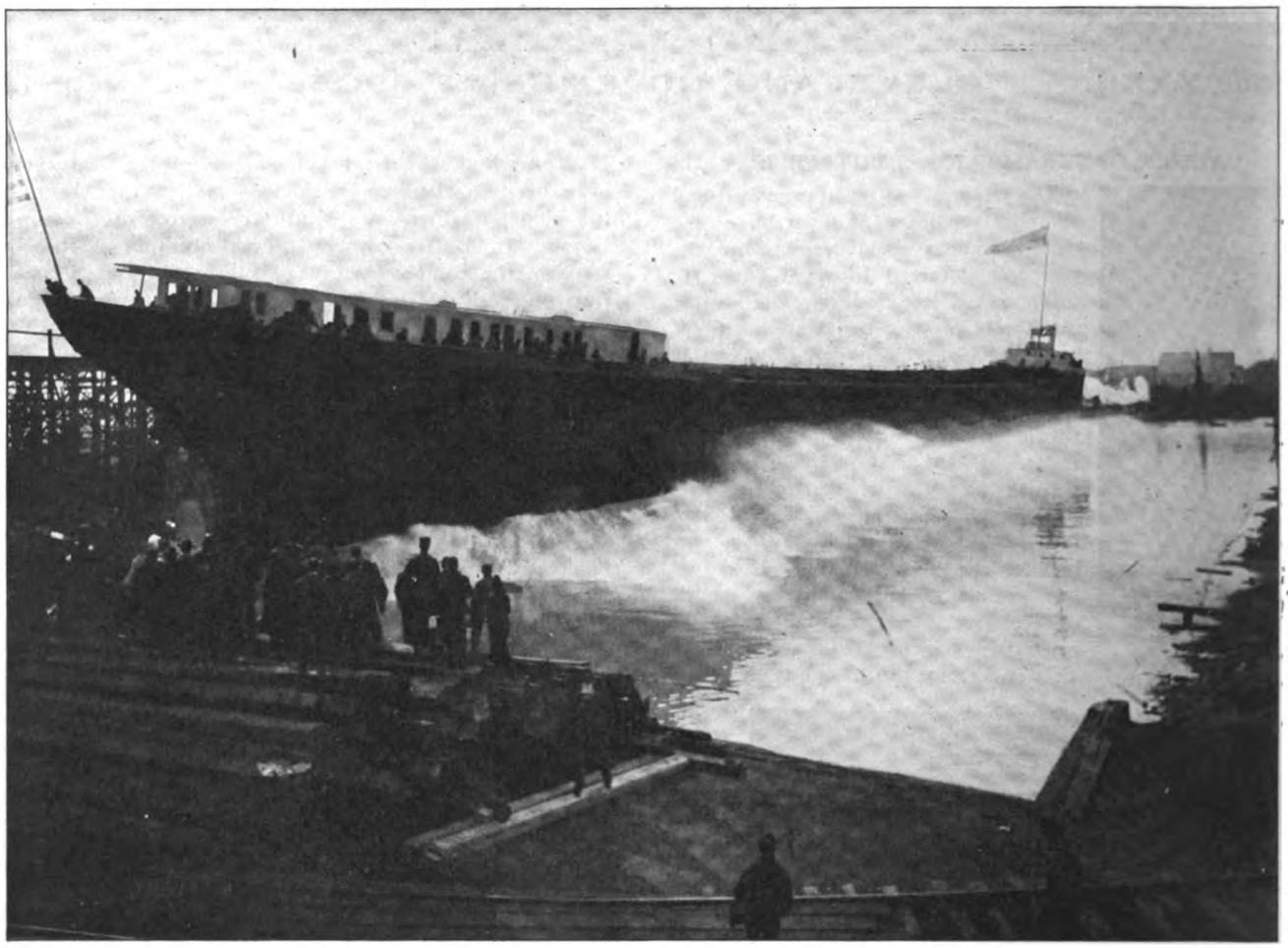
hatches, spaced 12 foot centers, the cargo hold is constructed on what is known as the girder system being continuous and without obstructions with the exception of the two steel bulkheads which divide the hold into three compartments. The vertical tank sides of the Butler are similar to those installed in the boats recently constructed, sister ships to the Butler being, the W. A. Rogers, built at Lorain and the Amasa Stone, and L. C. Hanna, built at Wyandotte, Mich. The triple expansion engine has cylinder dimensions 23 1-2, 38, and 63 by 42 in. stroke. Two Scotch boilers 14 ft. 6 in. in diameter by 11 ft. 6 in. long with a working pressure of 180 lb. and fitted with Ellis & Eaves draft will furnish the steam.

The ship was christened by Miss Josephine Butler Ford, of Youngstown, granddaughter of Joseph G. Butler, Jr., and daughter of E. L. Ford, of the Youngstown Steel Co. On the launching stand were the guests of Mr. Butler, Capt. Chas. L. Hutchinson, who will manage the new boat, and Mr. J. C. Wallace, of the Shipbuilding Co. A special car conveyed the guests from Cleveland to Lorain and return. Upon the return to Cleveland an informal dinner was given at the Union Club, the following being present: Mr. and Mrs. Joseph G. Butler Jr., Youngstown; Col. J. M. Schoonnaker, B. C. Vaughn, C. F. Perkins and Robert A. Walker, Pittsburg; Mr. and Mrs. Henry A. Butler, John Stambaugh, R. C. Steese, Mr. and Mrs. C. S. Crook, Mrs. E. L. Ford, John W. Ford, Josephine Butler Ford, Paul Jones, and Joseph Butler 3d, of Youngstown; Chris. Grover, Capt. and Mrs. Chas. L. Hutchinson, Mr. and Mrs. James C. Wallace, Robert Logan, Robert Wallace, Mrs. W. H. Becker, W. H. McGean, Mrs. John Donaldson, John Mulrooney, John Manuel, Edward Wiliams, Henry, Steinbrenner, Mrs. C. H. Myers, J. B. Guthrie, Frank Billings, Mr. and Mrs. Thos. Young, Prof. Jones, Capt. F. D. Harriman and Capt. E. K. Hutchinson.

There were no formal speeches, but in a few remarks Mr. Butler and Capt. Charles L. Hutchinson complimented the American Shipbuilding Co., and all connected with the construction of the steamer Joseph G. Butler, Jr., on the excellent showing made. The new boat will run to the head of the lakes light on her first trip and bring down a cargo of grain. She will be in command of Capt. W. P. Benham, who brought out the steamer Martin Mullen in 1904, and this season sailed the Wm. A. Paine

Mr. Butler's Career.

J. G. Butler Jr. has been connected with iron interests since he was 13 years of age, and in going into the business he followed the examples of his father, grandfather and great grandfather. Mr. Butler's great grandfather was in the charcoal iron business at the time of the opening of the Revolutionary War, and he and seven brothers were soldiers in the army of George Washington. Mr. Butler's father was a pioneer in the Lake Superior iron region, being associated with Peter White as far back as 1854. At thirteen, young Butler began working in the store of James Ward & Co., at Niles, which sold goods to the employees of the rolling mill. He served in this store in different capacities for several years, and then went to Youngstown, where he entered the employ of Hale & Ayer, jobbers and part owners of the Brown-Bonnell plant, which is now one of the interests of the Republic Iron & Steel Co. In 1866 Mr. Butler went to



LAUNCH OF STEAMER JOSEPH G. BUTLER JR.

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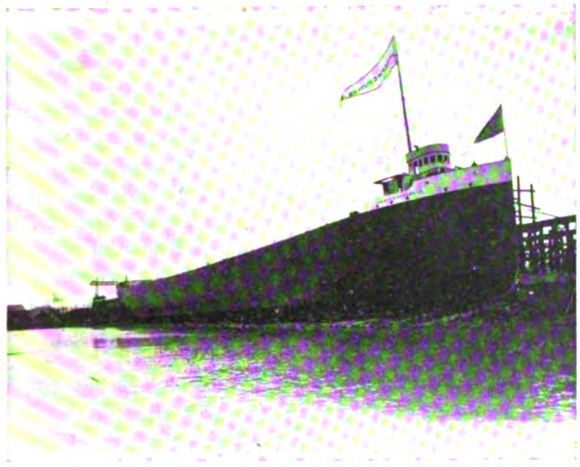
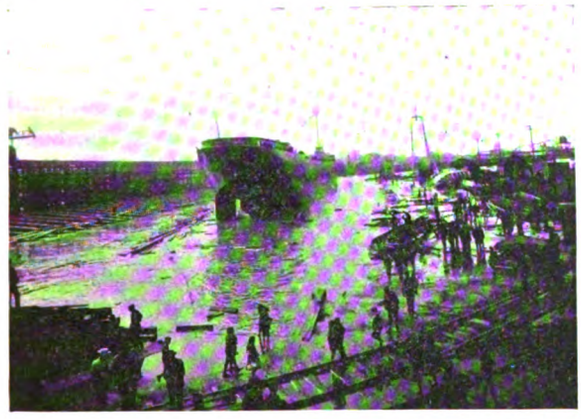
mation from all railroads who owned ore docks as to the cost per lineal foot, cost per 1,000 feet B. M. and cost per Girard, Pa., and became one of the original partners in the Girard Iron Co. In 1878 he left Girard, going to Brier Hill and becoming associated with Governor Tod's sons in the Brier Hill Iron & Coal Co., of which he became general manager, and has continued in that position up to the present time. He is also interested in



BUTLER JUST BEFORE LAUNCHING.

several iron ore mines on Lake Superior ranges. During the past 10 years, Mr. Butler has been very active as a representative of Bessemer pig iron interests in negotiating large sales and has rendered service of the highest value. He is regarded as one of the best informed and ablest pig iron salesmen in the country. His friends tell many stories illustrating his shrewdness and hustling qualities. For example, a few years ago a large purchase



IN THE SLIP AFTER LAUNCHING.

of pig iron was to be made at Wheeling. A number of salesmen started for Wheeling via Pittsburg. Mr. Butler was with the other salesmen at Pittsburg, but mysteriously disappeared before evening. His companions enjoyed a comfortable night's rest at Pittsburg, and when they arrived in Wheeling the next day, found that the order had been placed. Mr. Butler had traveled on a freight to Wheeling the night before.

A HAND TESTING PUMP

The Dake Engine Co., Grand Haven, Mich., manufacture a hand testing pump which is shown in the accompanying illustration. This pump is for use on steamboats for the testing of boilers. It is simple, durable and efficient. The maker states that many orders are being received for it, and that the users express perfect satisfaction with it.

CONSTRUCTION AND MAINTENANCE OF DOCKS AND WHARVES.*

The harbors of the great lakes are lined with docks or wharves for shipping of all classes of merchandise and products, and the purpose of our investigation is directed towards wharf or dock front, disregarding the superstructures and machinery necessary for loading or unloading the respective kinds of freight. Docks and wharf fronts, almost without exception, are of timber and pile construction. Standard plans of dock fronts have been received from several railroads. They are more or less alike, consisting of a row of piling driven from three to five feet on centers to a depth below dredging line along the front of dock. Usually two wales or fender streaks, but sometimes only one, are placed horizontally on the outside of such front piling. These fender streaks have the double purpose of distributing the pressure from docking boats over the front piling and holding such piling in position by means of anchor rods, which run back to a horizontal timber placed back of another row of piling called the anchor piling. This is driven parallel to and from 12 to 20 feet distant from the dock front. In soft bottom, it is necessary to place still another parallel row of piling 12 to 20 feet farther back and connect with it tie rods to the second row. In the rear of the dock front, sheet piling usually consisting of two thicknesses of plank, each three to four inches thick, is driven to a depth below dredging line, and in order to hold it in position, strips are placed horizontally between the front and sheet piling. This sheet piling is for the purpose of making the dock front tight and permitting a filling to be made level with top of dock front. Dock fronts are usually capped longitudinally with one or two pieces of 12x12-in. timber. The fender or wales are, of course, subjected to their principal wear from docking boats and should be of hard wood. Opinions differ so widely and radically as to minor details of construction, and, for instance, the relative value of this splice and that splice used in wales, caps, etc., that it is of little value to express any personal opinion in regard to the same. All plans submitted and consequently, the docks in use have that great fault that the matter of later maintenance and reconstruction in the event of the piling becoming decayed, are not considered.

The lower wale or fender, as well as the anchor timbers, (dead men) for anchor rods, should be placed so as to have their tops about on the water level. This means, of course, additional expense in first construction, but it virtually perpetuates the life of dock. Piling will decay in from six to ten years, according to its kind, above water line, and it is then only necessary to cut off the piling and build up with timber.

The cost of such dock construction at the present time is about eighteen to twenty dollars per lineal foot complete. The cost per 1,000 feet B. M. of lumber in same is about $28. The cost per lineal foot of piles in place is from 18 to 25 cents, according to the kind of piles used, whether soft or oak. For reasons already stated reference to dock and wharf construction, has been avoided. This applying equally well to corners, angles, etc., in the dock front. They must be constructed to suit the occasion and no typical plan of any value can really be submitted.

The ore docks of the great lakes are one type of dock which must take a prominent place, and, having nothing in common with the foregoing dock and wharf fronts, are the only other division of the subject to be considered. Ore docks are nearly all alike as regards general construction, but this committee endeavored to get specific infor-

*Abstract of report of committee of the association of Railway Superintendents of Bridges and Buildings.

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ton of storage capacity. It is to be regretted that replies were received from three out of eight inquiries only, and the largest and latest constructed docks are not represented in the tabulation of cost. It has been the tendency of late, owing to the steadily rising price of timber to reduce the amount of timber used in the construction of ore docks. In one instance, at least, this has proven rather disastrous and one of the latest docks constructed has begun to show decided signs of weakness. The following is a tabulation of cost of ore docks:

Name of Road.	Location.	Cost pr. Lin ft. of Dock	Cost pr. M ft. BM	Cost pr. Ton Storage Cap'y.
Duluth & Iron Range Ry.,	Two Harbors Minn.	$284.00	$29 00	$8.12
Duluth Messabe & Northern Ry.,	Duluth, Minn.	$305.39	$27.00	$7.90
Wisconsin Central Ry.	Ashland, Wis.	$262.00	$21.00	$6 30

Referring to above table of the D. & I. R., D. M. & N. and W. C. Ry.: These docks are closely identical as to general construction and the low price of cost per lineal foot of W. C. Ry. dock as compared with those of the D. & I. R. and D. M. & N., is due to the extreme narrowness of the former and in consequence less amount of timber per lineal foot.

In regard to maintenance of ore dock, no figures are on hand. The lining of pockets consisting of maple lumber, is about the first part of it to give out and needs renewal in about six years. Fenders and fender piles will last on an average ten years, while the main body of dock has been known in some cases to last about twenty years, this referring to that part of dock being below pocket floors, as these are virtually roofing to the sub-structure and keep moisture from it. The superstructure above pocket floors is very much subjected to exposure and wear. Bottoms of end, partition and pocket posts decay very rapidly and demand close attention after from six to eight years. The writer has always favored the plan advanced by Mr. Anderson as to ventilated construction of partition wall between pockets. However the plan is not by any means original, as Mr. McGonagle has followed the same method at least at one of the D. & I. R. Ry. docks at Two Harbors, and will certainly be in a position to explain the merits or demerits of the scheme. In two of the latest docks of the C. & N. W. Ry. at Ashland and Escanaba, another feature has been added, eliminating corners or pockets and providing for three outlet doors instead of one for each pocket. Spouts have been constructed to conform to this arrangement, and reports are to the effect that the method works to the greatest satisfaction.

POLE BOATS

The following interesting article on pole boats is from the *Muskegon News*, and is reproduced for the historical information contained in it:

The launching of the new river boat at Grand Rapids the other day recalls to pioneers the days when the old river was the principal artery of communication for all this region. When the earliest pioneers came batteaux and flat-bottomed boats were used. The regular running of steamboats began in 1837, although a pole boat, called the Young Napoleon, was operated by Louis Campau in 1835 and 1836. Among the early proprietors of pole boats were Thomas D. Gilbert and Francis Gilbert of Grand Haven but later of Grand Rapids. Richard Godfrey had a pole boat which was run below the rapids until the coming of steamboating. The Cinderella, a pole boat, was launched at Grandville in June, 1837. In the same year on July 4 the Governor Mason, the first steamer built at Grand Rapids, for Richard Godfrey, made her trial trip to Grandville. Capt. William Stoddard was the commander and he was succeeded by Capt. William Kanouse and afterward by Willard Sibley. The boat was not a success in a pecuniary way but ran to Grand Haven irregularly for some years.

In the same year the steamer Owashtanong was put afloat. This steamer was built by Robinson, White, Williams & Co. of Grand Haven. It was commanded by Capt. Thomas W. White and was a flat-bottomed freight boat. It was not a staunch craft and was often called The Poorhouse. It was run for a year or two and was finally dismantled and went to decay at Grand Haven.

The steamer Patronage, built at Grand Rapids, was put into service in 1838. This boat was in operation for several years. Its engine was built at Grandville. A small steamer, called the John Almy, was built in the same year by Orson Peck. This boat made one or two trips and was then stranded at the mouth of Flat river near Lowell. In 1845 the Mishawaka also went on the Grand Haven route. The Empire was launched by Daniel Ball and continued in operation until 1857. In 1846 the Odd Fellow, a propeller, was launched. She made several trips on the river and across Lake Michigan and was finally taken to Lake St. Clair.

In August the Humming Bird, built by Henry Steel at Lamont, came upon the river and was run by Capt. Sibley. She was built as it was commonly expressed, "on two canoes with a single paddle wheel in the middle." Her engine was one that had been made at the state salt works below the rapids. In 1848, the Algoma was brought upon the river by Alfred X. Carey and Falvey K. Rose. It was a slow boat much used for towing as well as for passenger traffic. It continued in service for seven years.

In 1852, Daniel Ball, Elisha M. Adams, John Clancey and C. B. Allyn purchased the Power built in 1850 by Henry R. Williams at Mishawaka, Ind. The Power was hauled over the canal bank near the dam and placed on the up-river route. In 1853 the Empire, Algoma, Humming Bird and Michigan were in operation between Grand Rapids and Grand Haven and the Porter was on the up-river route. The Kansas also went on the up-river route in 1854. The Olive Branch, a stern wheel boat, went on the Grand Haven run in 1855. The Forest Queen, built by Jacob Meddler at Grand Rapids for William T. Powers, was launched in 1856, and went on the run to Ionia and Lyons. In 1857 the Nebraska was launched by Daniel Ball and placed on the up-river route.

In 1860 the steamer Croton was brought to Grand Rapids from Muskegon. It ran on the river only a short time. In the period from 1860 to 1865, were built the Daniel Ball and L. G. Mason. Each had a short run. The Petroleum was built for a freight boat in 1865. The L. and L. Jenison was built by Capt. Jesse Gainne and Byron D. Ball in 1867, and ran upon the river for eight years. Then followed the old Barrett, which had a long and honorable career from 1874 to 1891 when she was burned in Grand Rapids. The last boat of importance to ply the river was the Valley City, and she was the largest the river ever had. This boat was afterwards shipped to the Pacific ocean and now plies on the Yukon in Alaska.

The annual convention of the Ohio Valley Improvement Association will be held at Cairo, Nov. 15, 16 and 17. Col. John L. Vance, president of the association, is now making a tour of the Ohio river cities interesting the various boards of trade and commercial bodies in the convention.

The Tacoma & Olympia Navigation Co., Tacoma, Wash., has given an order to the Puget Sound Machine Works for a steel steamer to cost about $150,000.

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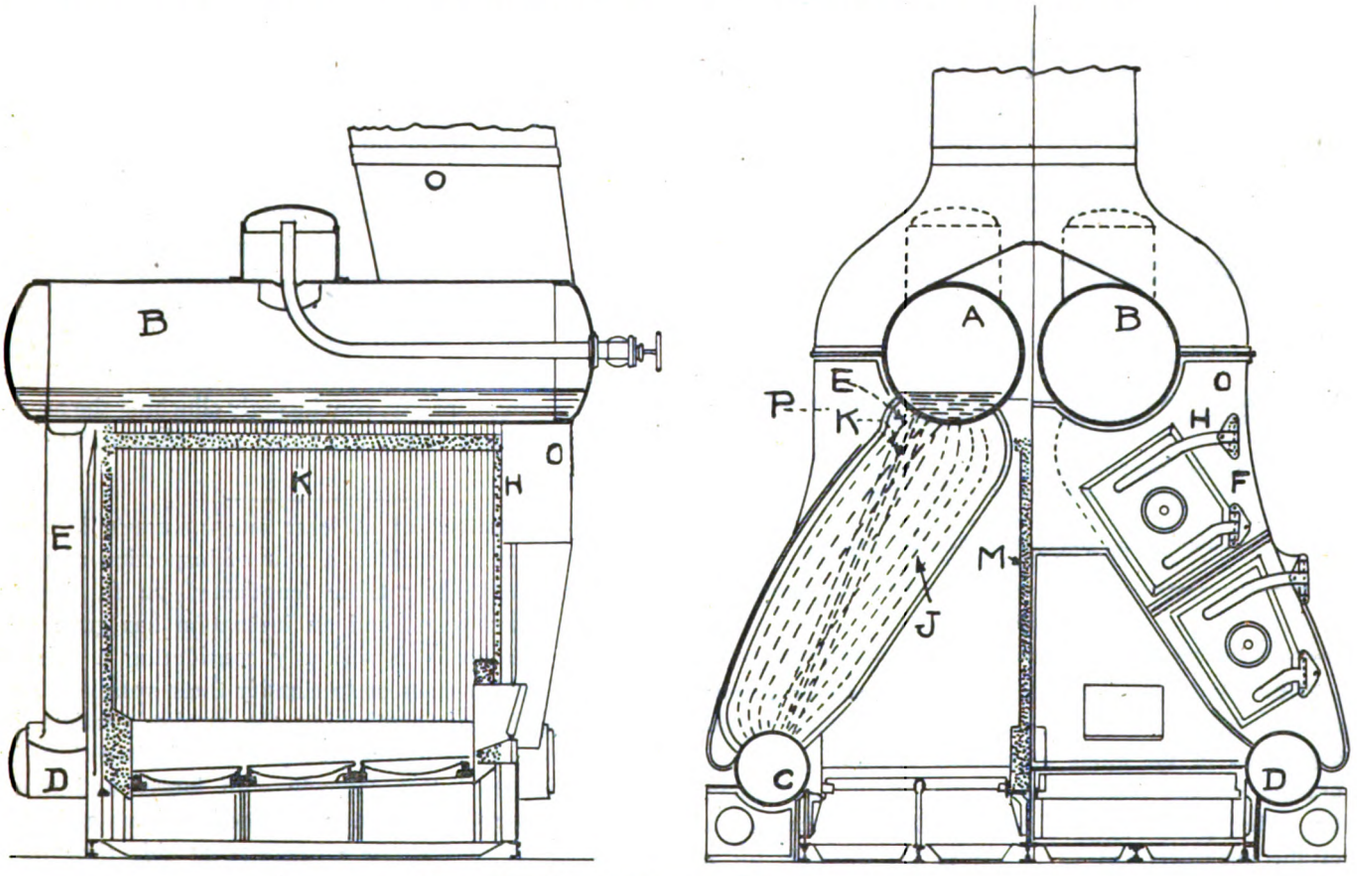
A NEW FRENCH WATER-TUBE MARINE BOILER

A water-tube marine boiler of French design is shown in the accompanying illustration. This boiler was designed by Normand & Co., of Havre France. In reality there are two boilers which are so built that they occupy the space usually taken by a single boiler, thus effecting a great saving of space and allowing economy in operation, as one boiler can be shut down when but little power is desired. Furthermore, it is not necessary to put the entire boiler out of service in order to repair a bursted tube or injury due to any other accident.

In the illustration the upper drums are designated by A and B and the lower drums by C and D. These drums receive the ends of the tube clusters. The down flow water tubes are shown at E, while the upflow occupy the space shown by the dotted lines J. The front ends of the upper and lower drums of the respective boilers are connected by hollow staybolts K. The fire boxes of the two boilers are arranged side by side but are separated by a vertical wall of fire brick M. If the boiler is to be run under forced draft this vertical wall is built in two parts with an air space between them. The two portions of the boiler are separated as regards feed water and steam generation. Their fire boxes and grates are also separated. The two boilers are provided with a common funnel N and with separate smoke boxes O and P. The hot gases rising from the furnace pass through the tube clusters into the two smoke boxes from whence they escape into the common funnel.



NEW NORMAND FRENCH WATER-TUBE MARINE BOILER.

The Cunard Steamship Co. have been notified that a diploma of honor, the highest award, has been granted to them for their exhibit of models at the Naval, Shipping and Fisheries' Exhibition at Earl's Court, London. The White Star line has also been awarded a diploma for a gold medal in respect of its exhibits at the same exhibition. The Pacific Steam Navigation Co., who also exhibited models of their steamers, have also been similarly honored.

The new White Star liner Adriatic, now in course of construction at the shipbuilding yard of Messrs. Harland and Wolff, Belfast, will be the greatest steamer afloat. She is practically and in some respects actually of the measurements of the Baltic, which till now is the largest steamer the oceans of the world have ever seen. The Adriatic differs only in one respect from the Baltic, inasmuch as she has more tonnage, but this does not imply either greater length or greater beam, but consists in deck arrangements. As is well known, the Baltic is a steel twin-screw four-masted steamer of 23,876 gross tonnage, having a length of 709.2 feet, with a beam of 75.6 feet, and depth 52.6 feet.

The Manitowoc Dry Dock Co. has received an order to lengthen the side-wheel steamer City of Chicago for the Graham & Morton Line by 28 ft.

PERRY BROWN SHEET PACKING

Following is a copy of a letter from Chief Engineer J. G. Randall of the steamer City of Erie of the Cleveland & Buffalo Transit Co.'s fleet to La Favorite Rubber Mfg. Co., Paterson, N. J. It speaks for itself:

"Gentlemen:—In compliance with your wishes regarding the Perry brown sheet packing furnished by your company in February 1902, to pack the steam joints on the steamer City of Erie preparatory to her trial of speed and endurance, as compared with the steamer Tashmoo, which took place in June 1902, and resulted in favor of the City of Erie will say, that the Perry brown sheet packing held an important part in this trial, as our success depended to a great extent on the packing used in our steam joints, and I am pleased to be able to inform you they were perfect and that this same packing, applied more than three years ago, is still in service and doing good work. I do not know what better recommendation anyone could ask for than this."

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With this issue of Marine Review we present to our readers and advertisers the second number since the inauguration of the strike of printers engaged in getting out the various publications of the Penton Publishing Co. The strike is still in effect, and the determination of the publishers not to submit to the demands for a closed shop, is as strong as it was in the beginning. This company has never discriminated against union labor; in fact nearly all employes engaged on its publications have been union men, but when the union attempts to enforce the making of a contract which would deprive non-union men of the privilege of employment, we believe they are making a demand which would not be justified in law or by what is universally considered by fair-minded men as giving one another a square deal. We believe in the principle of an open shop and have taken a stand to secure it.

With twenty-six contracts now in hands of lake shipbuilders for large steel vessels, the old story of having too much tonnage on the lakes has again been revived, but a few comparisons of tonnage carried and the increase from year to year should serve to point out that this argument is not well taken. In round numbers it may be said that there are 400 steel vessels on the lakes, and that of this number at least 150 are of the smaller type and cannot be considered as modern vessels. To November 1, 1905, 29,730,615 gross tons of ore have been carried from upper lake ports, and by the close of navigation over 33,000,000 tons will have been brought down. In 1900 the receipts at Lake Erie docks amounted to 15,797,787; in 1901, 17,014,076; in 1902, 22,649,424; in 1903, 18,739,995; in 1904, 17,032,814. With the increased demand for ore it is not at all improbable that within ten years and possibly within five, the annual shipments will be 50,000,000 tons. Within the past two years forty vessels, having an annual capacity in twenty trips of 7,210,000 tons, have either been built or contracted for by the shipyards. The increase in ore shipments for the season of 1905 to Nov. 1, over a similar period in 1904, was 12,073,456 tons, and from this statement alone it will be seen that the shipments are 5,000,000 tons in excess of the new tonnage placed on the lakes, and, as far as can be seen ahead, the outlook is rather for an increase than for a diminution in shipments, and unless the unusual happens, or the iron making business receives a very serious setback, statistics go to show that the increase in shipments in recent years is far in excess of the new carrying capacity, convincingly clinching the argument that there is not too much new shipbuilding on the lakes.

Representatives of at least one insurance interest on the lakes are making a tour of inspection of steel vessels, particularly those lengthened 72 ft. during the past two years, and an intimation has gone out that this company is seriously considering a refusal to take further risks or to classify these vessels. The practicability of lengthening the smaller carriers in order to give them greater capacity and place them in a position to better compete with larger and more recent vessels, has been determined without a doubt. The action of insurance interests at this time may determine for the owners the advisability of taking this step to increase their tonnage. The argument against insuring these lengthened boats is that their stability does not, in proportion with the increased size, give them enough freeboard or side-out to render them seaworthy.

The only lengthened vessel lost during the present season of navigation was the Sevona, but as all aboard that ship were lost there is no proof that the ship broke as a result of her lengthening or that she did not founder in the heavy sea and break after stranding, as any vessel subjected to continued pounding is liable to do. The adoption of patent sliding hatches on the more recent boats, and several minor accidents which have happened to those thus equipped, has called attention of insurance companies to the matter of hatches, and it has been intimated that more stringent regulations regarding strength of

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hatches and the use of strong backs will be inserted in future policies. There is bound to be a difference of opinion among insurance men regarding the lengthening of freighters as Bureau Veritas has classified them and given a rating of A1* which is likely to stand. The agitation has been started by one of the smaller companies. When such experts have passed favorably upon the question of lengthening the boats it seems highly improbable that the present stir will amount to much more than a ripple or do more than furnish an interesting topic for conversation this winter when business is dull.

The more recent of 10,000-ton ships turned out in lake shipyards have a feature which, while not important in itself, has an important bearing on, and is a great aid to, those concerned in the loading of the big carriers. The feature consists of draught marks amidship, in addition to those on the stem and stern of the freighters. The experience of masters of the very large carriers built within the last two or three years has been that these boats, if great care is not taken in distributing the cargo evenly, will "belly" or sag from 3 to 6 in. amidships. This difference would not show on the stem or stern draught marks and the ship might be drawing several inches more than indicated on the old marks without the knowledge of the master. The new midship marks will be a great aid to loading a boat evenly and distributing the load and thus prevent unusual strains and consequent damage should the ship encounter heavy weather or be caught in the shallow channels at several points along the lakes. Some masters have discovered that by loading a little heavier in both ends of the cargo hold, better results are attained.

The high esteem in which the work of the United States Lake Survey is held by those who make use of the data gathered and compiled by this office in Detroit is shown at a glance in the annual report of the Chief of Engineers, U. S. A. for 1905, where it is stated that during the fiscal year ending June 30, 1905, the number of charts sold by the Detroit office was 9,780 and by the Buffalo office 2,044, the aggregate sales, 11,824, being 1,160 more than in 1904. To date more than 300,000 of these charts have been sold and issued for actual service.

A Wise Man, whose home is on the banks of the Detroit river not far from Detroit, and whose name we have no intention of mentioning, within the past week came out with an interview maligning the modern steel freighters on the lakes, saying that they were nothing but tin boilers built not for safety of navigation but as carriers of large cargoes, and that should one of them be lifted up in the middle it would break apart with the weight of the ends. Mr. Wise Man evidently did not consider the fitness of things, or consider that elements surrounding the construction and operation of a ship have as much to do with its strength as many parts of its construction proper. To lift a ship bodily out of the water in the middle and expect it not to break may be likened only to taking a fish out of water and expecting it to perform its natural functions; to hang a man by the neck and expect him not to strangle; or to lift a skyscraper building up by the roof and expect to pull with it the foundation. Further comment on the policy of Mr. Wise Man and his argument is not necessary.

While at the present time there is little or no indication of possible labor troubles on the lakes before the opening of navigation next year, the various organizations controlling the men ashore and afloat are having their own little political campaigns, none of which are likely to have important bearing when conditions resolve themselves into a business proposition and the Lake Carriers' Association is ready to take up the question of wages and working conditions for the season of 1906. The old controversy as to where the marine cooks will finally land, either with the Longshoremen's Association or the Lake Seamen's Union, is up again and will be threshed out next week at the annual convention in Pittsburg of the American Federation of Labor with which both unions are affiliated. Harvey L. Jester, who until last spring was local agent of the Lake Seamen's Union at Detroit and who was defeated by a very narrow margin by Wm. Penje, of Chicago as general secretary-treasurer of the Seamen, has been doing some active campaign work during the summer and at the election this winter expects to give Penje another tussle for that office.

ORE SHIPMENTS GREATEST IN HISTORY

The statistics showing the ore shipments for October, 1905, and for the season to Nov. 1, fully confirm the estimates of the most sanguine concerning a record-breaking season in this trade, and there is no longer any doubt that the total for the season will not be less than 33,000,000 tons and the indications are favorable to a much larger total shipment. As shown in the following table the total shipment to Nov. 1, this year was 29,730,615 tons, as against 17,657,159 for the same period in 1905, a gain in favor of the present season of 12,073,450 tons. The shipment in October from all points was 4,257,000 tons as against 4,034,721 for October, 1905. For months during the season of 1905 the shipments were: April, 1,195,173; May, 4,619,431; June, 4,999,450; July, 5,224,620; August, 4,999,930; September, 4,425,550; October, 4,245,000.

Shipments by port and comparisons with October, 1904 and the season to November, 1905 with those of the same period last season are as follows:

	Oct. 1904.	Oct. 1905.	To Nov. 1, 1904.	To Nov. 1, 1905.
Escanaba	659,286	620,567	2,951,532	4,545,922
Gladstone	.....	.....	480	.....
Marquette	370,638	371,376	1,548,682	2,631,210
Ashland	470,505	447,580	1,902,236	3,033,774
Superior	799,221	707,629	3,482,255	4,574,407
Duluth	904,045	1,108,598	3,945,051	7,895,976
Two Harbors	831,026	1,001,259	3,826,523	7,049,326
	4,034,721	4,257,009	17,657,159	29,730,615
1905 Increase.....		222,288		12,073,456

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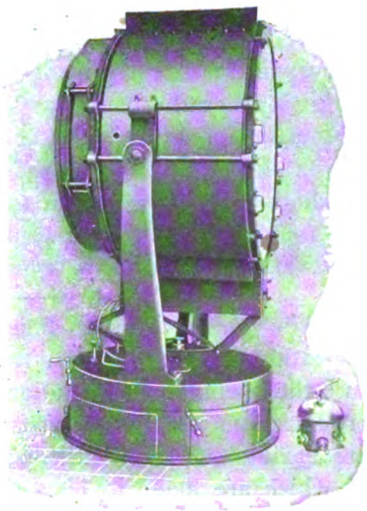
Searchlight projectors are adapted for use in signal towers and lighthouses, for theatrical effects and general engineering operations. On modern lightships where steam power is used, projectors are of inestimable value, their powerful beams penetrating the darkness for miles and warning incoming ships of dangerous shoals.



ELECTRIC CONTROL PROJECTOR AND CONTROLLER.

In size, projectors are made from the small 9 in. searchlight to the 80 in. model, shown in the illustration. This range in sizes adapts them to the various purposes which have been outlined, for commercial and government work in the various operations of war and peace.

TRIALS OF GERMAN TURBINE CRUISER

The results of some of the trials of the German cruiser Lubeck, fitted with Parson's steam turbines of continental manufacture, are now available, says the *Glasgow Herald,* and although neither complete nor conclusive, they are worth referring to. This vessel is of 3,200 tons displacement and has been built at a cost of $1,272,500. She is of the same type exactly as the Hamburg, but the latter has reciprocating engines, while the other has four shafts driven by steam turbines. On a 24-hour trial at 19 knots the coal consumption in the turbine driven steamer was 167.87 tons, as compared with 170.78 in the reciprocating engine ship. This is a much less saving than was established in the British admiralty trials of the Amethyst against vessels of the same size and closely resembling the Lubeck and Hamburg. Since then the Lubeck has had new propellers. Indeed, an instructive series of trials with various sizes and designs of screws is now in progress. With eight propellers, two on each of the four shafts, the consumption of coal was 1.92 lb. per h.p. per hour when the vessel was steaming 20.5 knots, which required 7,600 i. h.p. at 21.5 knots, when the power was 9,400 i. h.p. the coal consumption was 2.15 lb. per h.p. per hour. The Amethyst of 3,000 tons displacement, 200 tons less than the German cruiser, got 20.6 knots for 7,280 i. h.p., which is about the same as the German ship when the difference in displacement is reckoned, but the consumption was only 1.50 lbs. per h.p. per hour; while 23 knots was realized for 12,000 h.p. with a consumption of 2 lb. The Lubeck is now to be tried with four propellers, one on each shaft, with increased surface, etc., and it is anticipated that a higher speed will be realized. The designed speed of the Lubeck is 22 knots with 10,000 i. h.p., and it is pretty certain that this will be exceeded. It is, however, largely a question of the efficiency of propellers.

NEW DOCK AT SOUTHAMPTON

The new graving dock at Southampton, which has just been opened, is one of the largest in the world, and is amply capacious for the largest vessels afloat or building. Its principal dimensions are: Length, 875 feet; length occupied by keel blocks, 839 feet; width of entrance, 90 feet; width of dock at floor level, 90 feet; width of dock at cope level, 125 feet; depth of dock from cope to floor, 43 feet; depth of water over sill at high water of spring tides, 33 feet; depth of water over sill at high water neap tides, 29½ feet. Since they took possession of the dock property in 1892, the Southwestern Railway Co. have reclaimed an area of nearly 100 acres, formerly known as the "Mudlands," and the new dock approached directly from the estuary of the River Test, stands upon the northerly portion of this land in an exceedingly convenient situation. It is built almost entirely of Portland cement concrete, 133,000 cubic yards of which material has been used. The dock will hold 85,000 tons of water and can be emptied by two centrifugal pumps in 2½ hours. The entrance gates are covered by greenheart timber meeting faces, and 250 tons of steel is contained in each leaf. They are opened and closed by powerful direct-acting hydraulic rams, made by Armstrong, Whitworth & Co., and the plant provided for graving purposes includes a travelling electric crane, the largest in existence, capable of lifting more than 50 tons at a radius of 87 feet. This enormous steel structure will be invaluable to ships of war, as well as to passenger steamers, for which Southampton has now made such excellent provision, including no fewer than six graving docks.

GOETZE'S ELASTIC PROFILED COPPER AND METAL GASKETS

High-temperature, superheated steam is constantly increasing in use, and high water and air pressure are becoming more and more common with every new station. This makes a packing which is safe and in every respect reliable an absolute necessity. Experts and inventors have, for years, been experimenting to find a material superior to rubber, asbestos and lead for use in difficult positions. As a solution to the problem, the works of Frederick Goetze have brought out a combination of corrugated copper gasket and asbestos packing.

In using the Goetze copper-asbestos gasket, the advantage is obtained, that since, even on long runs of pipe, there will be no occasion for the renewal of the packing for many years, the putting on of a high cost covering on the piping and joints will not necessitate great expense at frequent intervals. The Goetze packing has been used on long lines with pressures up to 15 atmospheres in many private works and in the navy yards of Europe. At the Dusseldorf Exposition, all the main pipes were packed with these gaskets and the report of the committee was, that they showed absolute safety for high-pressure and superheated steam in all sizes. These gaskets were also in use at the St. Louis Exposition on steam, water and air pipes in the power plant and gave entire satisfaction to the engineers.

Fig. 1 shows the copper jointing ring made up of rings and asbestos packing, and Fig. 2 shows the corrugated copper gasket with asbestos lining on either side. This packing is for sale by Frederick Goetze, 723 E. 141st St., New York city.

The Gas Engine & Power Co., and Charles L. Seabury & Co., Consolidated, Morris Heights, New York, is building a new steel yacht for great lakes service. The yacht will be 118 ft. on the water line, 17 ft. beam and 6½ ft. draught.

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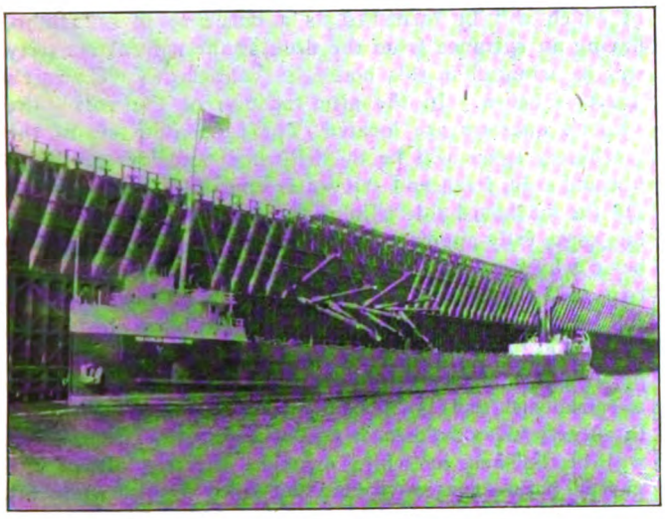
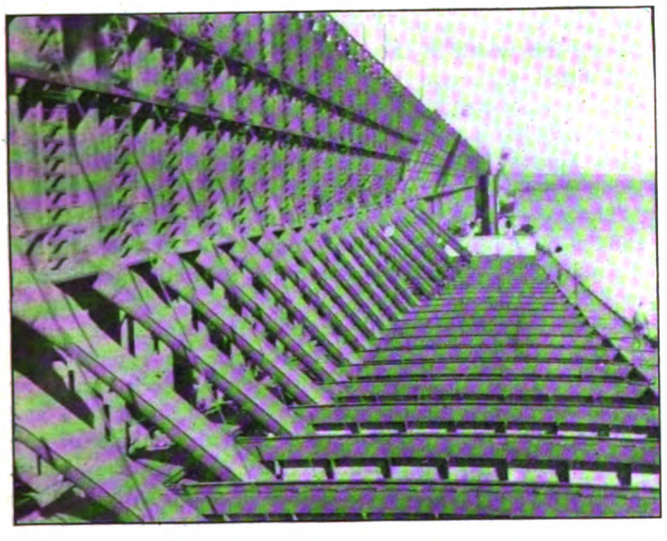
ORE SPOUT IN EVERY HATCH

Records for loading and unloading cargoes of iron ore on the great lakes are made possible only by the most modern and up-to-date dock facilities, and the height of economy in lake transportation depends not so much upon the size of the cargo carried as upon the dispatch given



STEAMER WM. A. PAINE.

at either end of the route. The ore docks at Allouez Bay, Duluth-Superior Harbor, are not only the largest in the world, but also have the record for quick loading of vessels. How this record was attained is shown in a



STEAMER PAINE, SPOUT IN EVERY HATCH.

small degree in the accompanying illustration of the steamer Wm. A. Paine at No. 2 dock with a spout from an ore pocket running into each of her twenty-eight hatches. The camera caught twenty-two of the spouts in operation. The first photograph shows ten spouts raised to permit the steamer to shift and load on an even keel.

The Pioneer Steamship Co., owner of the steamer Martin Mullen, has filed a libel against the Canadian steamer Turret Crown for $6,000. It is claimed that on Oct. 25, when the Mullen was moored at Lorain the Turret Crown improperly changed her course, colliding with the Mullen.

Destruction by wave action in Ludington Harbor has caused the Pere Marquette railroad to begin rebuilding its entire dock frontage of 1,100 feet on Pere Marquette lake at a cost of $25,000.

PALMETTO PACKING

The ever-increasing steam pressures of modern steam engineering have caused the packings made of rubber, cotton duck, flax and other vegetable fibres, that have been fairly satisfactory under the low steam pressures of the past, to become entirely inadequate to withstand the high temperatures incident to the high pressures.

Asbestos, owing to its heat resisting qualities has been substituted in its raw state as a packing material, and while it does not char under high temperature, and disintegrate like vegetable fibres, it becomes hard when compressed and scores the rods, and for that reason has fallen into disfavor as a material out of which to manufacture steam packing. Metallic packings have been resorted to as an alternative, but have proven satisfactory only when conditions are theoretically perfect, which of course do not continue for any length of time, when their failure to give satisfaction under varying working conditions, together with their heavy first cost, prove that the ideal packing sought for is not to be found among the metallic packings. Palmetto packing is made of the very highest grade of fine asbestos yarn, after first receiving special treatment by machinery designed for the purpose of eliminating all tendencies in the asbestos towards hardness, and at the same time retaining all its heat resisting qualities. Greene, Tweed & Co., 17 Murray St., New York, say that palmetto will not disintegrate under high temperatures and pressures and remains soft and pliable on the rods, every strand of the packing supplying graphited grease lubricant to the rods. For the reasons enumerated, Palmetto packing has longer life than any other fibrous packing manufactured, producing little friction, and consequently no wear on the rods, adapting itself readily to imperfect conditions, such as inequalities of the rods, etc., etc.

To prove that Palmetto packing is adapted to the most severe conditions known to air and steam pressures, and therefore without a rival in the line of packings, attention is called to the fact that the motive power departments of the very large railroad systems in the United States have after very severe and exhaustive tests, adopted Palmetto packing as standard for locomotive air pump service. Conditions under which packing is compelled to work in the locomotive air pumps of the Westinghouse and the New York Air Brake Companies' air brake systems, are unusually severe because the steam pressure is high and often runs at abnormal speed bringing the temperature in the air end to a very high point. The pumps are in constant service amid grease and dirt thrown from the engine causing a combination of the most severe and unfavorable conditions under which packing could be called upon to work.

If Palmetto packing has proven its merits under what might be termed "extreme conditions," as stated, it is only reasonable to infer that it will be correspondingly more satisfactory where the conditions are more favorable, and that its life and general efficiency with its usual self lubricating properties commend themselves to all users for steam of any pressure, superheated steam, high speed engines, air compressors, steam pumps, etc.

Palmetto twist packing put up on tin spools in neat, convenient packages of 1 lb. is found very serviceable in small valves and even for making gaskets. The size is variable and can be unstranded and be made into almost any size desired—this of course is only serviceable for small valve stems. Where a size above ¼ in. is required, the braided packing will be found more serviceable.

A revised chart in colors of Conneaut Harbor has just been issued by the United States lake survey office and is for sale by the *Marine Review*.

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CHICAGO GRAIN REPORT

Chicago, Nov. 8.—Rates were held steadily @ 2¾c. wheat and 2¼c. corn Buffalo—4c. @ 4¼c. Kingston etc.—and at nominally 6c. corn through to Montreal. Practically no new feature in the situation from the previous week. Lake movement notes a lower record—about a total of 700.000 bushels; against all rail hauling of some 2,200,000 bushels The Buffalo situation said to be clearing slightly though Buffalo reports indicate likelihood of delays up to close of navigation. The only relief appears to be in anticipating more or less delay by the obtainment of highest possible rates. For the time being Chicago rates via lake and all rail to New York on a parity.

Shipments of the past week distributed about as follows: Via all rail lines of flour 91,809 bbls.; wheat 182,207 bu; corn 436,003 bu.; oats 1,782,053 bu., and barley 318,602 bu. via lake to Buffalo and other American ports of flour 129,488 bbls.; wheat 125.000 bu.; corn 99.000 bu. and oats 90.000 bu. And via lake to Canada points of flour 1,150 bbls.; oats 268,000 bu. and barley 80.000 bu.

Lake and Rail Shipments.

	This week	Last Week	Same Week last year
Wheat	307,207	191,818	564,037
corn 436,903 bu.; oats 1,782,053 bu. and barley 318,602 bu.			
Oats	2,140,053	1,575,277	1,110,177
Rye	21,530	17,935	27,348
Barley	629,382	353,362	199,637
Total	3,634,075	3,447,068	2,627,664
Flour (Bbls.)	222,454	222,445	131,262

Shipments since Jan. 1, 1905.

		Same Time last year
Wheat	11,202,607	14,293,304
Corn	81,312,981	64,020,346
Oats	51,057,771	40,649,846
Rye	979,564	1,113,068
Barley	4,857,781	4,325,329
Total	150,010,704	124,401,893
Flour	5,957,789 (Bbls.)	6,198,242

Stocks of grain in elevators.

	This Week	Last Week	Same Week last year.
Wheat	7,205,000	6,450,000	4,342,000
Corn	931,000	1,046,000	1,223,000
Oats	13,488,000	13,034,000	9,844,000
Rye	403,000	351,000	645,000
Barley	330,000	329,000	190,000
Total	22,417,000	21,210,000	16,244,000

NEW STEAM YACHT FOR THE LAKES

For next season's service a prominent Western yachtsman, who has been identified with the sport on the great lakes for several years, has given a contract to the Gas Engine & Power Co., and Chas. L. Seabury & Co., of Morris Heights, on the Harlem river, for a high speed cruising steam yacht. He intends to cruise along the coast to the eastward as far as Nova Scotia, and thence through the Gulf of St. Lawrence to the great lakes.

The new craft in the matter of speed, comfort and substantial construction, promises to be one of the finest of cruising vessels. Mr. Chas. L. Seabury, the naval architect, is now at work on the vessel. The keel is laid and the frames are almost ready. The new yacht, which in all probability will be named the Algonquin, will be 140 feet over all, 118 feet on the water line, 17 feet beam and 6 ft. 6 in. draught. The keel, stem, frames, floors, reverse frames, keelsons, deck beams and plating will be of steel. Five steel watertight bulkheads, two forward, one amidships and two aft, will be fitted. The plan of the yacht shows a fine looking and able craft with pole masts and schooner rig. There is a deck house forward with the necessary interior space for dining accommodations. The forward part of this house will be fitted as the dining room with sideboard, buffet, etc., and at the after end will be arranged the steward's pantry. There will also be a commodious after deck house or social hall, the interior of which will be furnished as a music room or saloon, having an entrance from the deck at the side. A stairway will be arranged in this house for entrance to the owner's quarters below. In the after portion of the vessel the owner's quarters are located. The first room aft of the machinery space will be the bathroom and lavatory, with hot and cold, fresh and salt water and other conveniences. On the starboard side adjoining the bath, will be a dressing room fully appointed. The finish of these rooms will be in white enamel. The owner's state rooms, a suite of two, will be located on the starboard and port sides of the vessel. They will be fitted with brass bedsteads, wardrobes, dressing cases, etc., and the woodwork will be of white mahogany. Following the owner's quarters to starboard and port, will be the guests' bathrooms, fitted with all conveniences and accessories. These rooms will be finished in white enamel. Directly aft of the guests' bathrooms are to be two state rooms, while aft of these is the saloon, which is to be of liberal proportions and fitted with gun and fishing pole racks on either side, bookcases, etc., all in white mahogany. On the port side will be storage room.

Following the saloon aft and opening from the passageway will be three state rooms, fitted with berths, wardrobes, dressing cases and lavatories. Two of these rooms are quarter rooms, or of single size, while the other is to be the full width of the yacht, for the use of the guests, and fitted with two berths and all other conveniences. The deck house, skylights, companionways and deck fittings will be of mahogany, and the interior finish of both deck houses will be of the same wood, the lower part being paneled.

The galley is to be forward of the engine compartment, and in the forecastle will be found two state rooms for the officers, and berths for the crew, with all other accommodations needed. The yacht will be handled from an officers' bridge and will have a mechanical telegraph and the usual signal bells and pulls to the engine room. There will be ample space on top of the deck house for a guests' bridge which is to be utilized for chairs and settees. The yacht will have a Seabury engine of the triple expansion type and Seabury water tube boiler. There will be a complete electric light plant, with dynamos and storage batteries and a searchlight. Three small boats and a 21-ft. naphtha launch will be carried on the davits. The delivery of the craft is fixed for May 1.

The Arbecam Nautical Instrument Co. has been incorporated with a capital stock of $50,000 divided into two shares of $25,000 each, under the laws of Massachusetts. The object of the company is to deal in nautical instruments, making a specialty of Arbecam's adjustable compass deviation corrector, position, distance and deviation finder. Its officers are: Martin C. Healy, president, New Bedford, Mass.; H. Peyton Arbecam, vice president, Boston, Mass.; B. Varnum How, secretary and treasurer. This compass corrector is a valuable instrument on board ship. Full information concerning it will be sent to anyone upon request by Mr. B. V. How, 106 Tremont st., Boston, Mass.

Contract for the construction of a breakwater at Indian Harbor, P. E. I., has been let to Heney & Smith, Ottawa, Canada, at about $100,000.

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SEARCHLIGHT PROJECTORS

By F. M. Feiker.

DURING the late Russo-Japanese struggle a most striking object lesson has been afforded of the way in which electricity has taken a place as one of the chief factors in modern warfare. Indeed the many uses to which this subtle power has been put have made it quite indispensable, both on the battlefield and in naval encounters. The general on land directs the movements of his army by telephone, while at sea, the admiral communicates with his fleet by wireless telegraphy, and the officer in the conning tower governs the maneuvers of his individual ship through the agency of electricity.

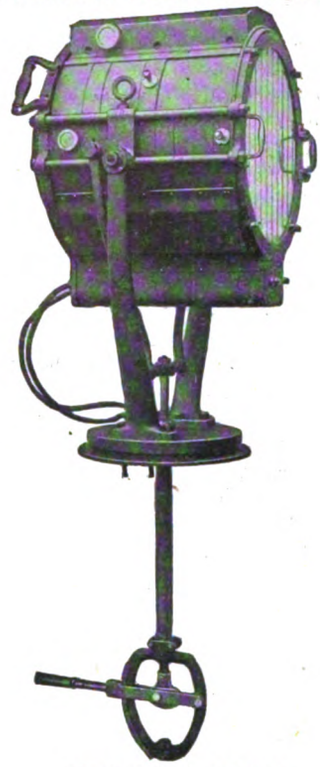
Among the varied uses to which electricity is put in warfare, one of the most important is its application to the searchlight. At night from a captive balloon or a hill top, this powerful light sweeps the country in search of the enemy, or illuminates the battlefield while the red-cross detail performs its merciful work in caring for the wounded. On the sea, the searchlight continually flashes out across the water scanning the waves for torpedo boats, and enabling the gunner to repel them with the rapid fire guns should any be discovered. Mounted at harbor entrances and controlled electrically from a distance, the beams from the projector lights patrol the bay, and along the shore line giant fingers of light point out the incoming enemy that the gunners in the coast defenses may find their mark.

HAND CONTROL PROJECTOR.

But searchlights have found a place in the piping times of peace as well as in war. Passengers on the Hudson River night boats find new beauties in the scenery of that historic stream viewed in this electric light. Its beams intensify the natural grandeur of the river shores, vividly contrasting the lighted portions with the surrounding darkness. The same effect is produced by a searchlight on a mountain top, the view of the surrounding country beneath changing with kaleidoscopic rapidity. More practical uses are found, too, for the searchlight aside from these more aesthetic applications. Dockyards and outdoor construction works of all classes are brilliantly illuminated by the same means. This method of lighting concentrates the source of light and enables work to be done as quickly and as well as by day.

Certain definite details of construction are essential in searchlights for these purposes to insure the most efficient service. Special forms of electric arc lamps and reflectors are used for projectors.

The lamp is a horizontal, automatic form of arc-light, equipped with special devices for feeding and regulating the carbons, and a silvered mirror concentrates the light so produced. Both lamps and mirrors are designed for the hard usage to which all marine apparatus is subjected. The reflector is of course an essential feature in the searchlight and is constructed with the greatest care. Two types of mirrors are used, mangin and the parabolic reflector. The former type is adapted to the smaller sizes of lights, and the parabolic mirror is used in the larger projectors, because of the weight of the glass in the mangin form. The arc is placed at the focus of the mirror, so that the crater carbon faces it, and the light is thus thrown from the mirror, in parallel rays. That portion of the light which might be projected from the negative carbon is prevented from so doing by a device called the obturator which cuts off these unfocussed light rays. This protecting shield also serves the purpose of keeping the arc at the top of the carbons, being constructed for this purpose, in the form of a permanent magnet completely enclosing the carbons except at the top where the arc forms. As the carbons are consumed, both are fed automatically keeping the arc always in the proper focus. If such an adjustment were not provided the reflector beam of light would look in profile, like an hour glass. The mechanism of the lamp, however, adjusts the arc in its proper relation to the mirror and prevents this distortion of the light rays.



PILOT HOUSE CONTROL PROJECTOR.

In general, there are four methods of controlling the horizontal and vertical movements of the projector; namely, the hand, rope, pilot house and electric control system. In the hand control, used in smaller sizes, the operator stands beside the lamp and directs the light by suitable handles without the aid of levers or other devices. The second method, that of rope control, as the illustration shows, combines a system of levers, ropes and pulleys, which enables the operator to direct the movements of the lamp from a limited distance. Pilot-house control is a specific application of the searchlight, in which the controlling mechanism is so arranged that the projector may be mounted on the pilot-house. This is a common method of installation, and the illustration shows the arrangement employed. In the fourth mentioned system, the electric control, two motors are used, one for the vertical, the other for horizontal movements of the projection apparatus. These motors are operated at a distance by means of an electric controller connected to them by a flexible cable.

CONTINUED ON PAGE 22.

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LIVERPOOL SHIPPING LETTER

Liverpool, Oct., 30.—The suggestion has been made by Lloyds Register of British and Foreign shipping that the lengths of cables required by the rules of that society for steamships are very much in excess of what are actually needed, with the result that steamers are condemned to carry an extra weight which, it is claimed, is quite unnecessary to the exclusion of a corresponding amount of cargo. It is further urged that Lloyds Register should reconsider their rules as to stream and kedge anchors, on the ground that they are so very rarely needed that the cargo is more of an encumbrance than otherwise, apart from the question of carrying the additional weight. The committee of Lloyds Register have invited the views of the Merchant Service guild which has a membership of over 10,000 shipmasters and officers, on the matter. The Guild in replying state that they offer the strongest possible objections to any amendments of the rules in the direction suggested. The length of cables as at present enforced, are, they say, by no means in excess of what they should be, if due regard is to be had to the safety of the ship, whilst they admit that the full lengths are not used under ordinary circumstances, they inform Lloyds Register that it is by no means rare that, in case of emergencies, such as bad weather or impending collision, every inch of the present cable is urgently needed, and it is urged that the fact of these cables being of adequate length is a vitally important asset to the safety of a ship. On the point of abolishing or reducing the stream and kedge anchors, this also meets with the Guild's entire disapproval though these anchors are not commonly used, it is pointed out that where a vessel happens to strand on what perhaps is a flat, sandy, or muddy bottom, the value of these small handy anchors for use in assisting her off is unquestionable, in fact, in some rivers they are absolutely indispensable. Further the Guild state that any reduction such as those urged would make quite an inappreciable difference so far as a ship's carrying capacity was concerned. Their opinion is that to adopt the suggestions which have been made would mean diminishing the degree of a vessel's safety, and to do this the Guild hopes that the committee of Lloyds Register will emphatically decline.

Sir William H. White, late director of naval construction lecturing in London on Oct. 24, on "Naval Construction," contrasted British warships with similar vessels built at corresponding periods for foreign countries, notably France, and claim that taking ship for ship, and class for class, British ships, costly as they were, had been more economically constructed. Our advance had been far beyond that in any previous period of naval history. Yet with all the changes certain essentials had held good. The first was that the backbone of a fleet must be vessels capable of giving heavy blows--a view recognized by the Japs who, in the crisis of the recent war, ordered still larger and more powerful vessels of that capacity, and the second was that they must be supplemented by other types of vessels. Alluding to the Japanese vessels, he observed that they were built very much on the lines of British vessels, which was a matter of no very small moment in view of the Anglo-Japanese alliance, because British seamen could take possession of them if need be, and fight them with very little difficulty.

Mr. James Gilchrist, the new president of the Institution of Engineers and Shipbuilders in Scotland, addressing the first meeting of the present session on Oct. 23, said that turbines were now being largely introduced on board ships, and the results already obtained had been phenomenal. At present these results were only known to a favored few. Speeds had been announced, but reliable information as to initial cost, upkeep, and coal consumption had not yet been given. The two large turbine steamers (Allan liners), which had been running on the North Atlantic had done good work, but it was rumored that the coal bills were much heavier than was ever anticipated. Shipbuilders and engineers were, however, looking forward with great interest to the running of the Cunard liners, Caronia and Carmania, sister ships in every particular except for machinery, and vessels which would give accurate and reliable results. The turbine Cunarder Carmania is, by the way, almost ready for delivery, and is fixed to sail from Liverpool to New York on her maiden voyage on Dec. 2.

The "boom" in British shipbuilding is still apparent, and shows no signs of waning from the number of new ships that are being booked. The situation at the moment is best described by the October report of the Amalgamated Society of Engineers, relating to Scotland. As an indication of improved trade the secretary reports that over 100,000 tons have been placed with various builders. Outside of the marine shops, in mostly every other branch of the trade, orders are still plentiful, and not a few working at high pressure, overtime and night shifts being the rule. The prospects are best exemplified by the action of the employers on the wage question. At the conference in London in August last, the employers not only refused the application of the engineers for an advance, but declined to entertain the suggestion of a compromise. Yet only six weeks after things had so much improved that they were now willing to restore the last reduction in wages. In the Newcastle district the report says that the local trade outlook has undergone considerable change for the better, one firm having paid 12½ percent, whilst reporting prospects for 1906 "decidedly good." The remarkable change which has taken place in the general situation since the beginning of the autumn is says the *Glasgow Herald*, the result of a combination of favorable influences which have forced themselves on the trade at large after the conclusion of peace, the latter having created possibilities of a vast expansion of trade in the far east, and accelerated the reawakening of industrial enterprise in European countries after several years of stagnation.

An expectant feeling has been created in those centers of the shipbuilding industry which turn out warships, by the decision of Russia to build a number of battleships and fighting crafts of lower types. Although Germany is on the alert and the United States likewise expectant, British builders are confident of a fair proportion of the orders, knowing that competitors cannot cut them out altogether, either in price, workmanship or design. Russia cannot build as cheaply as she can buy, but at the same time, the Russian naval authorities will do some of the work in the dockyards. It is said that orders for armor have been secured already by two British firms, and altogether there seems to be a very fair prospect that British shipyards will benefit from Russia's need.

The Red Star Line are gradually selling their old liners, which formerly maintained the regular service between Liverpool and Philadelphia, and Antwerp and Philadelphia. The Pennland, Rhynland, and Switzerland were sold some time ago to an Italian ship-breaking-up firm, and have ended their days on the shores of Genoa. Now the ship Nederland has been disposed of to the same company for the same purpose. The Pennland was built in 1870 at Glasgow, the Rhynland in 1879 at Barrow, the Nederland in 1873, and the Switzerland in 1874 at Newcastle-on-Tyne.

Owing to the withdrawing of their regular mail steamer by the White Star Line for overhaul, the usual mid-weekly transAtlantic mail was sent this week by the Norddentscher Lloyd steamer Kaiser Wilhelm II. This company's steamer Havel, in 1891, it appears, was the first transAtlantic liner in which a fully equipped seapost was established, with arrangements for sorting the mail bags during the passage. Since then similar arrangements have been made on board the steamers of the White Star and American lines. The

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Cunard steamer Caronia and their new turbine steamer Carmania have also a fully equipped seapost. The amount of mail matter on board when the Kaiser Wilhelm II., left Southampton on Thursday, was 2,350 sacks, and 400 more were embarked at Cherbourg, making 2,750 sacks. In sorting the letters on board there are four German and two American officials. On the outward journey to New York, the chief German official is in charge, while on the return passage it is the chief American official who is in command.

With the arrival at Glasgow this week of the liner Numidian, the connection of the Allan line with New York comes to an end—at least until some arrangement is arrived at as to rent of the New York wharves. The Anchor Line are thus left without a competitor in the Clyde-New York service, and, if one may judge from the fact that they have ordered another large liner to engage in the trade, they mean to continue to hold the upper hand so far as this service is concerned. It must, however, be a matter for regret that the Allan Line should have to drop out of the trade just when the outlook is brightest. For several years a depression has existed, and now that it seems likely to be dispelled, it is a pity that the Allan Line should not participate in the revival. Messrs. Allan have maintained a direct service with New York for over a dozen years, since the time when they bought up the famous old State Line. In those days the total absorption of one line by another was not so common as nowadays, and the deal was the cause of a great amount of talk in shipping circles, the enterprise of the Allan Line being highly spoken of. The vessels of the State Line are now, as such, non-existent, the last to leave Glasgow being the State of Nebraska, which was sold foreign in 1902 for breaking-up purposes. Only three of the other vessels of the fleet remain afloat, but they are now under foreign flags and new names.

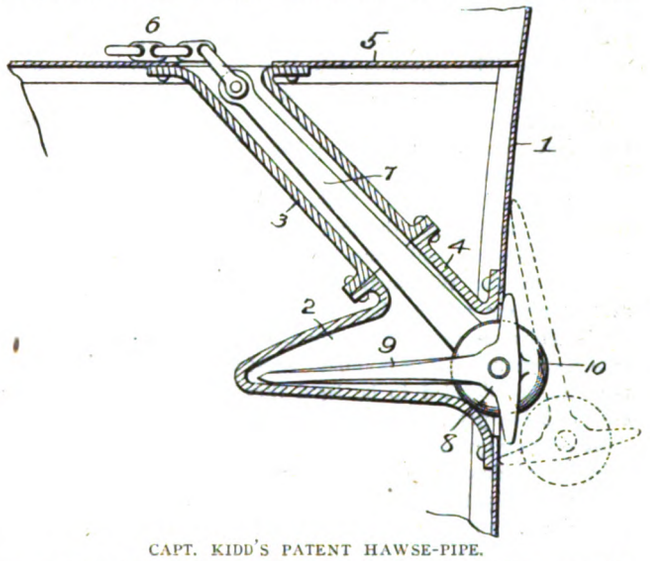
The two new magnificent passenger steamers for the Canadian Pacific Railway Co., which are now under construction on the Clyde, are nearly ready for launching. These steamers which will be named respectively, Empress of Britain and Empress of Ireland, will be without doubt the most up-to-date steamers that have yet engaged in the Canadian trade. Their equipment will be of the most modern type, advantage having been taken of the latest improvements on liners, and many new features for the comfort and convenience of passengers, and the protection of perishable freight have also been introduced. They are intended for the Liverpool-St. Lawrence trade, and will be ready when the next season opens. They will be larger and faster than any steamers hitherto run on this route, their tonnage being 14,500 tons, length, 570 ft. and breadth, 65 ft. They will have accomodation for 300 first, and 350 second cabin passengers, together with 1,000 steerage. Their high speed will enable them to do the voyage in less than a week. The first vessel, namely the Empress of Ireland will be launched on Nov. 11, and the Empress of Britain about a month later.

Capt. John F. Wallace, former chief engineer of the Panama Canal, was present at the meeting of the Panama Canal Commission in Washington last week. The Commission is anxious to obtain Mr. Wallace's views about various features of prospective canal work; particularly his opinion as to the time which will be required in installing adequate machinery to get at the maximum output of earth at the Culebra cut and what that amount will be. Mr. Wallace expects to have his statement ready within a week.

The New Orleans Dock & Ship Building Co. is experiencing some delay in getting the machinery for its dry dock. It hopes, however, to have the dock soon in working order.

CAPT. JOS. KIDD'S PATENT HAWSE-PIPE

The invention of Capt. Joseph Kidd, of Duluth, consisting of a patent anchor pocket and hawse-pipe for stowing anchors and bringing the big flukes within the ship and leaving the butt almost flush with the side plating and in line with the fender strake, is to be given a trial on two of the big ships now being constructed at the plant of the Great Lakes Engineering Works, at Ecorse. Within the past two years the ordinary form of stockless anchor in common use on the lakes, has in some cases caused more damage in cases of collision than the force of the collision itself, the most striking instance being the damage done to the steamer Bessemer, of the Pittsburg Steamship Co., when in collision with the steamer Sinaloa, of the Tomlinson fleet, when the stockless anchor of the Sinaloa tore a hole 72 ft. long and 2½ ft. wide in the side of the Bessemer, carrying with it frames and all, along the length of the break. In connection with his patent Capt. Kidd points out that the common form of stockless anchor hanging outboard from the hawse-pipe is bad for a vessel in a heady head sea; the head catching so much water that the ship is badly shaken up every time she strikes a sea. By stowing the anchor within his patent hawse-pipe, Capt. Kidd claims his device will do



CAPT. KIDD'S PATENT HAWSE-PIPE.

away with these difficulties and at the same time provide more adequate means of handling an anchor. The accompanying illustration is self explanatory and shows at a glance the object sought by this invention.

No. 1 in the drawing represents the hull of the vessel, having an opening in its side communicating with the improved anchor pocket, No. 2, of metal, preferably cast, and of the general shape shown, which is secured by bolts or otherwise to the ship's side. The hawse-pipe, 3, communicates with and is secured to a neck, 4, of the pocket and at its upper end is secured to the deck, 5. Six represents the hawse or anchor chain secured to the end of stem, 7, of the anchor, 8. The anchor is of that character, having the stem pivotally connected with the arms carrying flukes, 9, and the latter are of the ordinary "T" shape, and the arms join a spherical enlargement, 10, between them to receive a ball of stem, 7, and form a pivotal connection.

In operation the chain is wound on the windlass, drawing up the anchor until the stem, 7, is drawn up into the hawse-pipe, 3. A continued upward pull of the chain will draw the long members of the flukes into the pocket, 2, and the shorter members thereof and the arms against the ship's side, closing the pocket. When the anchor is in this position, the flukes will rest on the approximately

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flat bottom of the pocket and be supported therein and the anchor held against movement, but when the windlass permits the unwinding of the chain, the anchor will of its own weight fall out of the pocket and can be lowered without difficulty. Capt. Kidd, who is a well-known marine architect and surveyor with offices at Duluth, has patented his device in this country and in Europe.

GENERAL SITUATION AT DULUTH

Duluth, Minn., Nov. 7.—Within the past few days a large amount of wheat has been taken here for shipment on the close of navigation, and it is estimated that at least 7,500,000 bushels in this sort of charters have been taken. These charters run to April 1 next, at Buffalo. The rate was 3½ cts. and is now 4 cts., the same as immediate tonnage, as vesselmen expect a slump in rates and are glad to fill up for the close at this figure. Of the total about 4,000,000 bu. are wheat, 2,500,000 bu. flax and the remainder oats, etc. The grain movement at the head of the lakes for October amounted to receipts of 17,653,000 bu., compared with 15,549,000 bu. last year, and shipments of 13,678,000 bu. as compared with 11,315,000 bu. last year. There are now 3,970,000 bu. wheat in store, of which all but 260,000 bu. are special bin. More than 1,000,000 bu. of wheat and about 250,000 bu. of flaxseed have been shipped to Chicago on this crop. There is a lot more of both grains to be shipped there during the remaining season of navigation. The wheat is part of a lot that has been sold to the Armours, of Chicago, and will be placed by them.

The grain inspection fight at Superior is still on, but in statu quo; the Wisconsin department is still breaking into cars of wheat and other grains consigned to Duluth firms, taking samples therefrom and going through the form of inspecting them, the railroads are collecting the extra fees for inspection demanded by the Wisconsin department, the grain consignees at Duluth are paying these fees under protest and the railroad companies are not paying the money over to the Wisconsin department, but holding it, and giving bond that in case the fees are decided to be legal they will pay over, and a case is being prepared for settlement of this important point.

By making guarantees of quick delivery into Buffalo storage shippers of flaxseed who have their own storage there have been able to get rates of 3¼ cts. a bushel, against the going rate of 4 cts. to others. As an instance of the prevailing delay three ships have been waiting for more than a week, and one shipper here this morning received word of the discharge of a vessel that had been there for 9 days.

TO BE TAKEN TO SAN FRANCISCO

Chief Engineer Hogan, of the steamship Enterprise, has just left San Francisco for New York, where he goes to superintend the work on the steamship Gaditana, that has recently been purchased by the Matson Navigation Co. He will direct the work of equipping the steamship with oil burners, and will then bring the vessel around to San Francisco.

The Gaditana was purchased at auction by the Matson Navigation Co. The vessel is built to carry both freight and passengers. On reaching San Francisco the steamer's name will be changed to the "City of Hilo." The vessel will not leave New York before the first of January. She is about the same size and capacity of the Enterprise.

Mr. Benjamin Varnum How, 106 Tremont street, Boston, has just compiled an attractive catalog descriptive of Arbecam's alidade adjustable compass deviation corrector, which will be sent to any one interested upon request. This instrument is a position and distance finder, and is represented as a modern necessity on board of every ship worth insuring.

BEHIND THE GUNS AT LORAIN

The records for quick construction at the Lorain plant of the American Shipbuilding Co., call into prominence the men upon whom the actual work devolved. The accompanying illustration shows Supt. F. L. La Marche, of

F. L. LAMARCHE. O N. STEELE

the Lorain yard, and General Superintendent O. N. Steele, of the shipbuilding company, taking a look at the new steamer Jos. G. Butler Jr., being towed out of the slip after the launch last Saturday. Archie Payton is assistant superintendent of the Lorain yard.

PILOT JOHNSON'S SUSPENSION

San Francisco, Nov. 7.—Pilot C. B. Johnson, who was on the bridge of the steamship Alameda when that vessel ran on the reef at Fort Point, has just been suspended for a period of four months. His suspension dates from Oct. 2; so he will not be permitted to take a vessel in or out of San Francisco harbor until Feb. 2. The pilot commissioners, reviewing the testimony, decided that Johnson was guilty of unskillful navigation. He was blamed for changing the course of his vessel when she was headed through the Golden Gate. In voting as to the sentence to be imposed on Johnson, one of the commissioners was for suspending his license for a longer period than four months. The testimony showed that the pilots were in the habit of depending upon the Lime Point fog signal when entering or leaving the harbor during a fog. In his testimony Johnson stated that he did not hear the fog whistle, and was prompted to change the course by the tide eddy, which induced him to believe that the position of the Alameda was nearer the Marin shore than it was afterward proved to be. The light sentence was imposed in view of the fact that it was Johnson's first accident, and because the Alameda was not lost on the rocks.

LAKE CARRIERS MEET

The executive committee of the Lake Carriers' Association met in Detroit last week, and among other things passed a resolution protesting against any possible permanent or temporary obstruction in connection with the projected plan of the Michigan Central Railroad to tunnel the river at Detroit. While it is not known whether the railroad company intends to place any obstruction to navigation in the river, the association passed this resolution which has been used several times previously, in the form of an anchor to windward, and to be prepared with a protest should it become necessary at a later date.

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FREIGHT SITUATION

With a wider range between ore and grain rates than ever before, the freight situation is little changed from last week. Boats are being badly delayed at the upper end of the route by the ore freezing in the pockets. While ore shippers have paid as high as $1 on special cargoes they are standing firm and will not now pay the advance and wild tonnage is scarce. The grain rate at Duluth holds at 4 cents and 5 cents at Fort William.

The car ferry steamer Grand Haven, which for the past two years has operated between Milwaukee and Grand Haven, for the Grand Trunk railroad, has been sold by the mortgagees, represented by the Fidelity Trust Co., of Milwaukee, to E. H. Fitzhugh, representing the Grand Trunk for $186,131.14, the amount of the mortgage.

CONEMAUGH-NEW YORK CASE AGAIN

The old damage suit first started in 1891, when the steamer Conemaugh was sunk by the steamer New York, at Sandwich Point, Detroit river, is about to be given another hearing. This case, which originally involved $70,000, has been fought four times in the United States District Court at Detroit, three times in the United States Court of Appeals at Cincinnati and three times in the Supreme Court of the United States. The United States Supreme Court has granted a writ of certiorari which will take it for the fourth time before the highest tribunal in the land. With the interest on the original amount claimed and cost of the suit, the amount now involved is more than double the original claim.

The loss of the steamer Siberia behind Long Point recalls an interesting experience through which that steamer passed on her last trip up in the fall of 1903 in command of Capt. Walter Ashley. The Siberia took a cargo of coal from Lake Erie consigned to Milwaukee. Ice was already heavy in the rivers and before she had proceeded ten miles across Lake St. Clair she was cut through and sunk just outside of the Strait channel above Windmill Point, and the cargo hold was filled with water. With floating ice which had already cut away the ranges at Beache Isle floating past her, divers put on a temporary patch, pumps were put aboard, and after three days' work the vessel was floated. She proceeded to St. Clair and later to Port Huron, where steel sheathing was put over the break and thus repaired the Siberia proceeded across Lake Huron through the ice in the Straits of Mackinaw and was the last boat of the year to enter Milwaukee.

Supervising Inspector C. H. Westcott at Detroit, has suspended the licensed officers of the steamer Harriet A. Hart, which burned on Lake Huron June 15 last, and the passengers of which were rescued by the Anchor line steamer Juniata. Capt. Joseph Carrigan and first officer J. T. Roulette were suspended for thirty days for permitting the crew to smoke on the main deck. Chief Engineer Rufus Spaulding and Assistant Engineer B. W. Neeland, were suspended for ninety days because the fire hose was not connected with the vessel's after pumps.

The steamer Frank Rockefeller, of the Pittsburg Steamship Co., is ashore on Isle Royale and is exposed to a heavy sea, and is in a dangerous position, in about the same location where the Canadian Pacific steamer Algoma went to pieces eighteen years ago.

The steamer Appomattox which went ashore on North Point, near Milwaukee, is a constructive total loss, and will be abandoned by the underwriters.

GERMAN ASBESTOS PACKING

The duty that piston rod packings are called upon to perform is becoming more severe each year. Steam pressures are increasing constantly and superheated steam is also an issue of the day. Packing manufacturers find the conditions which they are required to meet, far more difficult than when in the past, practically any packing could be placed in a stuffing box and would give a certain amount of service. Engineers are also beginning to realize that the labor of packing a box is more expensive than the cost of the packing itself and the loss due to shut downs caused by low grade packings, far overbalance the original cost of the packing. Therefore the ideal packing is one which, in marine work for instance, will last an entire season at least without renewal and at the same time be absolutely steam tight without undue friction on the rod.

Attention has recently been called to "German Asbestos," an imported packing for which the Advance Packing & Supply Co., 55 So. Canal St., Chicago, are the sole American agents. This packing was the original asbestos packing placed on the American market and for many years has been the favorite packing of marine engineers. It is extensively used on the great lakes, and on salt water is used by many lines of the merchant marine as well as the German navy.

The manufacturers of this packing advise that "German Asbestos" will stand any temperature of steam and will not become hard in the stuffing box. Cases have been brought to their notice when this packing was still perfect after twenty months of continuous service. The manufacturers would be pleased to send samples to any one interested.

On Wednesday last the White Star Liner, Oceanica, which has been fitted with the receiving apparatus for submarine fog signalling, tested the capacity of the instrument after leaving Liverpool for New York. The result is reported as most gratifying, for the ringing of the North West Light vessel's bell was detected at a distance of nine and a half miles, the speed of the ship at the time being 16 knots. The position of the lightship was accurately located at two points on the bow.

Capt. M. Mulholland of the steamer Alva has invented a very simple device for the operation of a wooden hatch cover, the cost of which, he says, is but trifling compared with the cost of the steel cover. Capt. Mulholland intends to bring his new device to the attention of vessel owners. The device can be adapted to any kind of a hatch cover and to both wooden and steel ships.

The Rutland Transit Co., through General Manager E. T. Douglass, Buffalo, has closed contract with the American Shipbuilding Co., for the construction of two canal size package freighters to go into commission June 15, 1906. They will be 256 ft. over all, 42 ft. keel, 43 ft. beam, and 26 ft. 6 in. deep, and will have a capacity through the canal of 2,100 tons.

Car Ferry Pere Marquette No. 14 has been taken from Port Huron, and from this time will operate between Detroit and Windsor, where the Pere Marquette have established ferry slips, and will transfer its cars across Detroit river.

The American consul at Prague, Austria, has established a bureau of commercial intelligence, classifying catalogs so that they are of easy access to possible purchasers in his territory. Catalogs sent him must contain prices and discount lists, and must have weights and measures reduced to the standards there in use. Reference lists should also be sent.

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NEW STEEL TUG FOR FRANK PERRY

The new steel tug Frank Perry constructed by Johnston Bros., of Ferrysburg, Mich., has been turned over to her owner Frank Perry, of Sault Ste. Marie, Mich., and another tug of the same dimensions is now under contract between the same parties. On her way to the Sault during the

NEW STEEL TUG FRANK PERRY.

big storm in the middle of October, the Perry ran ashore in the Straits and was considerably damaged, being taken to Detroit for repairs. She is 142 ft. long, 25 ft. beam and 13 ft. 4 in. molded depth, registering 496 gross tons. She is equipped with fore and aft compound engine, cylinders 22 in., 44 in. by 36 in. stroke, and has a Scotch marine boiler, 13 ft. by 13 ft., and allowed 150 lb. working pressure. The tug is equipped with the Dake steam steerer, steam windlasses and steam capstan.

PARSON'S MARINE TURBINE

The eighth annual report of the Parsons Marine Steam Turbine Co. was submitted to the shareholders on Wednesday Oct. 18. The directors say that during the period covered by the report, the company's business has continued to progress satisfactorily.

Since the last report orders for turbine engines have been executed by the company for the following firms. H. M. third-class cruiser, Amethyst, built by Sir W. G. Armstrong, Whitworth & Co., (Ltd.), Newcastle-on-Tyne; R. M. S. Virginian, built by Alex. Stephen & Son, (Ltd.). for James and Alexander Allan, for service to Canada; S. Z. Albion, built by Swan Hunter and Wigham Richardson, Ltd., for Sir George Newnes, M. P.; S. S. Onward, built by W. Denny and Bros., for the South Eastern and Chatham Railway Co., for service in the Euglish channel; S. S. Princess Elizabeth, built by Cockerill & Co., of Seraing, Belgium, for the Belgian government, for service between Ostend and Dover; S. S. Viking, built by Sir W. G. Armstrong, Whitworth & Co., (Ltd.), for the Isle-of-Man Steam Packet Co., Ltd., for service between Liverpool and the Isle-of-Man. Turbine engines have also been constructed by the following firms under license from the company; Denny & Co., for the Lama and Lunka, built by W. Denny and Bros., for the British India Steam Navigation Co., Ltd., for service between the Persian Gulf and India; also for the Invicta, built by this firm for the South-Eastern & Chatham Railway, for service in the English channel; Workman, Clark & Co., Ltd., for the R. M. S. Victorian, built by them for James and Alexander Allan, for service to Canada.

Fairfield Shipbuilding & Engineering Co., Ltd., for the Steam Yacht Narcissus, built by them for E. M. Mundy; also for the Dieppe, built by them for the London, Brighton & South Coast Railway company's Newhaven and Dieppe service.

The following is a list of the orders received by the company for turbine engines, and at present in progress.

One set by a vessel building by Cammell, Laird & Co, Ltd., for the Fishguard and Rosslare Railways and Harbors company.

One small experimental set for the United States Naval Academy, Annapolis, U. S. A.

One set for a 26-knot coastal destroyer building by John I. Thornycroft & Co., Ltd., for the British navy.

One set for the Royal Yacht building by A. and J. Inglis, for King Edward.

One set for H. M. battleship Dreadnought, (building at Portsmouth dockyard) under contract with Vickers Sons and Maxim, Ltd.

One set for a 33-knot torpedo-boat destroyer, building by Sir W. G. Armstrong, Whitworth & Co., Ltd., for the British navy.

Two sets for 31-knot torpedo-boat destroyers, building by Palmer's Shipbuilding and Iron Co. Ltd.

The following is a list of turbine engines being manufactured under license from the company:

Four sets by John Brown & Co., Ltd., viz.: one set for the liner Carmania, and one set for the large liner building by them for the Cunard Steamship Co. Ltd., also two sets for vessels building by them for the Fishguard and Rosslare Railways and Harbors Co.

One set by the Wallsend Slipway & Engineering Co. Ltd., for the large liner building by Swan, Hunter & Wigham Richardson, Ltd., for the Cunard Steamship Co., Ltd.

Two sets by Denny & Co., for vessels building by W. Denny and Bros., viz.: one for the British India Steam Navigation Co., Ltd., and the other for the Union Steamship Co., of New Zealand, Ltd.

One set by A. & J. Inglis, for re-engineering the yacht Mahroussa, owned by H. M., the Khedive of Egypt.

One set by the Fairfield Shipbuilding & Engineering Co., Ltd., for a vessel building by them for G. & J. Burns, Ltd., for service between Ardrossan and Belfast.

One set by Workman, Clark & Co., Ltd., for a vessel building by them for the British India Steam Navigation Co., Ltd.

Six sets by J. Samuel White & Co., Ltd., viz.: five sets for 26-knot coastal destroyers, and one set for a 33-knot torpedo-boat destroyer, building by them for the British navy.

Five sets by John I. Thornycroft & Co., Ltd., viz.: four sets for 26-knot coastal destroyers, and one set for a 33-knot torpedo-boat destroyer, building by them for the British navy.

Two sets by Zarrow & Co., Ltd., for 26-knot coastal destroyers, building by them for the British navy.

One set by R. & W. Hawthorn, Leslie & Co., Ltd., and one set by Cammell, Laird & Co., Ltd., for 33-knot torpedo-boat destroyers, building by them for the British navy.

One set by the Bath Iron Works, Bath, Me., U. S. A., for a 24-knot scout, building by them for the United States navy.

Three sets by W. & A. Fletcher Co., Hoboken, N. J., U. S. A., for passenger vessels for service in the States

The indicated horse power of turbine engines delivered by the company since the last report is 49,000; the indicated horse power of orders received by the company during the same period is 69,600; the indicated horse power of turbine engines delivered by the company's licensees is 55,000 and the indicated horse power of orders received by the company's licensees is 312,900, making a total since the commencement of about 590,000 I. H. P.

It is satisfactory to note from the above that the British Admiralty has recently placed orders for 12 coastal destroy-

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ers of 26-knot speed, and five torpedo-boat destroyers of 33-knot speed, to be fitted with turbine machinery, also an order for turbine machinery for the battleship Dreadnought.

The directors state that the following principal shipbuilding and engineering companies in the British Isles and abroad have taken out licenses to manufacture marine steam turbines on the "Parsons" system. Denny & Co., Dumbarton; Workman, Clark & Co., Belfast, Wallsend Slipway and Engineering Co., Ltd., Wallsend; John Brown & Co., Ltd., Clydebank; R. & W. Hawthorn, Leslie & Co., Ltd., Newcastle; Fairfield Shipbuilding & Engineering Co., Ltd., Glasgow; Richardson, Westgarth & Co., Ltd., Hartlepool; Humphreys,Tennant & Co., London; John I. Thornycroft & Co., Ltd., London; J. Samuel White & Co., Ltd., Cowes; Zarrow & Co., Ltd., London; Palmers Shipbuilding & Iron Co., Ltd., Jarrow; Harland & Wolff, Ltd., Belfast; A. & J. Inglis, Ltd., Glasgow; Alex Stephen & Sons, Ltd., Glasgow; Gourlay Bros. & Co., Dundee; Day, Summers & Co., Ltd., Southampton; Cammell, Laird & Co., Ltd., Birkenhead; Thames Iron Works, Shipbuilding & Engineering Co., Ltd., London; Scott's Shipbuilding & Engineering Co., Ltd., Greenock; Sir W. G. Armstrong, Whitworth & Co., Ltd., Newcastle; Swan, Hunter & Wigham Richardson, Ltd., Wallsend; Vickers Sons & Maxim, Ltd., Barrow; W. Beardmore & Co., Ltd., Glasgow; Royal Engineering Co., Flushing, Holland; Polson Iron Works, Ltd., Toronto, Canada; Mitsu Bishi Goshi Kwaishi, Tokio, Japan; Ansaldo, Armstrong & Co., Genoa, Italy; William Cramp & Sons Co., Philadelphia, U. S. A.; Bath Iron Works, Bath, Me., U. S. A.; W. & A. Fletcher Co., Hoboken, N. J., U. S. A.; Allis-Chalmers Co., Jersey City, N. J., U. S. A.; Turbinis Deutsche Parsons Marine A. G. Berlin, for Germany and Russia; La Societe Anonyme John Cockerill, Seraing, for Belgium; La Compagnie Electro Mecanique, Paris, for France; Die Oesterreichische Dampfturbinen, Ges. Brunn, Moravia, for Austria-Hungary, Roumania, Servia and Bulgaria; Burmeister & Wains, Copenhagen, for Denmark, Norway and Sweden, and London, and Glasgow Engineering & Iron Shipbuilding Co., Ltd., Glasgow.

The company has disposed of its original shares in Parsons' Foreign Patents Co., Ltd., for a sum received in cash, and certain new shares which carry an interest which the directors consider of considerable value. The past year's working of the Parsons Company has enabled the directors to recommend payment of a dividend at the rate of 10 percent per annum and carrying forward a balance of $33,864. On July 19, 1905, Sir William H. White, K. C. B., was elected a director of the company.

The Royal Mail Steam Packet Co. has reopened its service between the West Indies and New York after an interval of some years. The ceremonies inaugural to the new service took place in the saloon of the steamship Tagus when about 150 guests of the company lunched with the chairman of its board of directors, Owen Phillips. After Mr. Phillips had offered a toast to King Edward and President Roosevelt he delivered a short address, reciting the history of the company. The Tagus was built in 1899 by Napier & Sons, Glasgow. She is 410 ft. long, 50 ft. beam and has a speed of 17 knots.

The brig Galilee, chartered by the Carnegie Institute to make magnetic surveys in the Northern Pacific ocean has just completed her survey as far as Hawaii. The Galilee is without a particle of steel rigging and is equipped with improved apparatus. She has already proved existing charts to be erroneous.

WIZARD MARINE ENGINE

The Temple Pump Co., Chicago, Ill., is the builder of the "Wizard" gasoline marine engine. This engine is designed for use in small launches and pleasure boats and is a splendid machine for its work. The weight of the 3 H. P. engine is 260 lb. It has been built rather heavy in order to withstand hard usage and rough handling. It is designed for maximum durability, safety and all-round efficiency.

The engine is of the two-cycle type and is charged through a valve instead of a port. The advantage of this is that where the valve is opened by a cam action the charge enters the explosion chamber through a passage that is instantly opened to its full capacity. This also permits the charge to enter the explosion chamber under a head, causing it, instead of mixing with the burned gases to drive them before, it thus effectually scavenging the cylinders.

The distance which the charge has to traverse in its passage from the mixing to the explosion chamber is but a quarter of an inch. The engine starts easily and is stated to be as reliable in performance as any four-cycle engine.

The engine is equipped with a governor for the maintenance of constant speed under all variations of load. In conjunction with this governor the engine is equipped with a speed changing device by means of which the speed may be varied from 300 to 800 revolutions per minute, and also be maintained at any desired speed without variation. This feature relieves the operater from the constant attendance at the throttle, while the rate of speed is still under control and unvarying. Among other advantages this governor prevents the engine from racing when the clutch on the propellor is released. The speed changing device acts through the governor spring and is of a special design.

The engine is also designed so that it can be used for both marine and stationary purposes. It can be mounted upon a regular stationary engine base by the simple application of four cap-screws. If desired, the regular stationary engine flywheel can be substituted for the regular marine fly-wheel.

The engine is provided with an ignition dynamo especially adapted for marine use. It is open type so the parts can be readily examined, and has a free circulation of air thus preventing overheating.

In order to appropriately celebrate the completion of the Simplon tunnel, an international exposition will be held in Milan from May to November next year. The dominant feature of this exposition will be motion. All products as far as possible must be shown in connection with the processes. An especial feature will be the automobile display to which the entire pavilion will be devoted. The automobile department will terminate its part in midsummer so that machines exhibited may be sold for early delivery. Information concerning the proposed exposition may be had from J. H. Gore, George Washington University, Washington, D. C.

The Westinghouse Machine Co., East Pittsburg, Pa., has just put out a little folder devoted to the Westinghouse storage battery for railway signal service. These batteries are represented to have exceedingly long life, due to the use of an integral grid of pure lead without tin, antimony or other alloy, and without joint or weld; to the division of the active material into exceedingly small units, so that when the life of one of these units is extinct, it does not interrupt the service of the other units, and to the disposal of the lead in such form that there is ample reserve material in the units themselves with a minumum of corrosion upon the frame and conducting ribs.

Moran Bros. Co., Seattle, Wash., are to build a steamer 185 ft. long and 33 ft. beam for the Alaska Steamship Co

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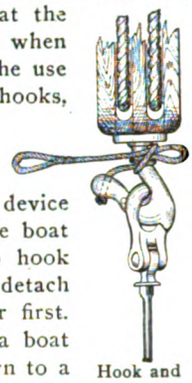
RAYMOND RELEASING HOOK

Mr. James R. Raymond 17 State street, New York, has placed on the market the Raymond releasing hook for boats. Probably there is no part of the ship's equipment more important than a reliable device with which her boats can be lowered and detached in time of emergency. Mr. Raymond says that the new releasing hook is an improvement over what was known as the Standard automatic releasing hook, a device for lowering and detaching boats more extensively used than any other device for this purpose in existence. The improvements in the Raymond releasing hook were suggested after years of experience with the Standard automatic releasing hook. The advantages of the Raymond releasing hook over the Standard automatic releasing hook are related as follows: First, the fin on the back of the hook prevents the shackle from passing back or upwards far enough to allow it to fall behind the bill of the hook while detaching or being hooked on, and also aids in starting the shackle to fall. Second, the shackles are made to conform to the shape of the hook when seated, thus making the boat more secure when hanging in the davits, and prevents the possibility of its twisting off of the hooks when swinging the boat out or in-board. Third, the perfect fitting of the shackles to the hooks obviates the necessity of mousing the hooks, except while carrying the boat out-board in a rolling sea, when the boat might become waterborne. Fourth, the hole in the rods or straps to which the shackles are fitted is made ovoidal in shape, which causes the shackle to fall more freely and very much more quickly when detaching.

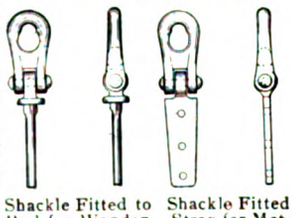
Hook and Shackle Attached.

The hook is simple in construction and is so similar to the old-fashioned hooks and rings as to need little instruction how to operate it. The hooks will not detach until the boat becomes water-borne. With this device the danger of the boat being inopportunely released by some one pulling a lever or lanyard at the wrong time or accidentally hitting them when getting in the boat is eliminated. By the use of the lanyards drove in the bills to the hooks, the boat can be hooked on with certainty on the darkest night or roughest sea without injury to the fingers. This is a feature possessed by no other device and avoids delay and the danger of the boat being smashed alongside by failure to hook on quickly. Both ends of the boat will detach no matter which end strikes the water first. The hooks being automatic in action a boat guided by a long painter may drift down to a wreck, should the sea be too rough to risk the lives of the boat's crew. Installing the hooks it is not necessary to purchase new blocks. The hooks can be riveted to the straps of blocks already on hand by any block-maker, and the shackles can be installed in the boats by any boat builder.



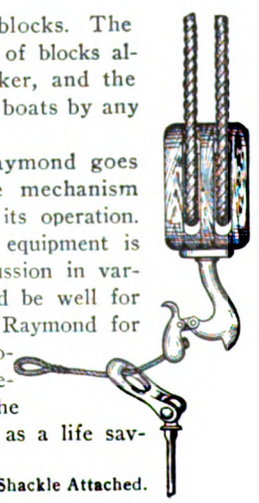
Hook and Shackle Detached.

STANDING BY TO LOWER BOAT WITH RAYMOND'S RELEASING HOOK.



Shackle Fitted to Rod for Wooden Boats. Shackle Fitted Strap for Met-Boats.

The circular issued by Mr. Raymond goes into great detail concerning the mechanism of the book with instructions for its operation. Efficient and adequate life saving equipment is at present a subject of much discussion in various steamship circles, and it would be well for anyone interested to write to Mr. Raymond for a copy of the catalog, which is profusely illustrated, and goes into detail concerning the operation of the releasing hook, and its advantages as a life saving apparatus.



Hook and Shackle Attached.

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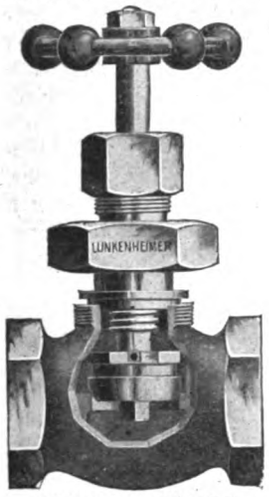
IMPROVED REGRINDING VALVES

The Lunkenheimer Co., manufacturers of the well-known high grade Lunkenheimer engineering specialties have made a number of desirable improvements on their regrinding valves. The changes, however, are not at all radical, as the valve has been in use for half a century and has proven itself to be of the correct design, having given general satisfaction wherever used. Its manufacturers have, however, increased the weight of the valve, not because the thickness of shell, etc., were too light in their former products, but merely as an additional precaution against rough handling while attaching, etc.



LUNKENHEIMER REGRINDING VALVE.

The medium pattern valves are guaranteed to stand a working pressure of 200 lbs. per square inch and the extra heavy pattern up to 350 lbs., per square inch. They have also altered the shape of the valve, which not only makes an elegant appearance but also increases the area through the valve permitting an unobstructed passage through same, the area being more than equal to that of the connecting pipe. To insure a perfect and strong joint between the pipe and valve, the pipe threads have been made considerably longer, thereby overcoming the danger of stripping threads which so often happens owing to rough and unskilled workmanship in attaching. All sizes of the valves now have lock-nuts on the hand wheels which facilitates the taking apart and assembling of the valve for repairs, etc.

Referring to the sectional illustration, it will be noticed that the hub which carries the operating stem is secured to the body by a union connection, which, in turn, screws over the shell of the valve body. By means of this construction it is impossible for the hub and the body to become corroded together, as the thread which holds the union ring to the body is protected at all times from the action of the steam, the joint being made between the flange on the hub and the neck of the body. This connection also acts as a tie or binder in screwing over the body and tends to make the valve rigid and strong. The disc A is held loosely to the stem F, by means of the lock-nut J and therefore will adjust itself to the seat very readily and a tight joint can be relied upon. The stem F is fitted with a very strong, durable and long thread and the hand wheel is of ample diameter to insure the easy operation of the valve.

To regrind the valve, the bonnet ring is unscrewed and the trimmings are removed from the body. A wire or nail is placed through the lock-nut and stem, a little powdered sand or glass and soap or oil is placed on the disc and the trimmings are again placed in the valve and reground. The bonnet has a small rim or projection on the bottom thereof which acts as a guide on the inside of the valve neck while regrinding. The seats in the valve-bodies are very small when the valves are sent out from the factory, which permits of considerable regrinding and is considered an important feature. The valve can be packed under pressure when open or closed and to pack while the steam is flowing through the valve, open same as wide as possible when the shoulder at the top of the stem thread will form a seat beneath the stuffing box. The material used is of the highest grade of bronze composition and the workmanship is in every respect commendable. Before being sent out of the factory, every valve is thoroughly tested and inspected, the stuffing boxes are packed and they are ready for immediate use.

The company have, in connection with their plant, a complete physical and chemical laboratory, which enables them to manufacture their products of such composition as are best adapted to withstand the chemical actions, strains, etc., to which the various products are subjected. The laboratories also enable the company to guarantee their products in every respect.

FOUR NEW OIL STEAMERS

The Union Oil Company have just purchased four immense tank steamers, which will be operated on the Pacific coast in conjunction with the vessels that are now plying. It is the purpose of the company in the near future to construct several gigantic oil carriers, and the entire line will be operated under the name of the Union Steamship Co. The manager of the Union Oil Co., John Baker Jr., has just returned to San Francisco from New York, where he purchased three big steamers, and also visited shipyards with reference to the building of other vessels. He brought back incorporation papers of the Union Steamship Co. The company is incorporated under the laws of New Jersey, and has a capitalization of $5,000,000. The vessels acquired by the oil company are the Lansing, Washtenaw, and Roma. The Argyle, which has been plying on the Pacific coast, under charter to the Union Oil Co., was also purchased. This vessel was owned by the Michigan Steamship Co. The Lansing has a capacity of 47,000 barrels of oil, and is the largest and fastest tank steamer afloat. The Washtenaw formerly ran on the Pacific coast and carries 28,000 barrels. The tanks of the Roma will hold 27,500 barrels. The acquirement of these vessels makes the Union Oil Co., of California, one of the largest operators of tank steamers in the world. Its tonnage is now far in excess of that owned by the Standard Oil Co. The plans have been already drawn for the vessels that are to be built. The largest vessel will be a 17,000-ton tank steamer, 660 ft. long. The oil to be transported by these vessels will come principally from the Santa Maria oil fields, and the market will be found in domestic and foreign ports. The three vessels purchased will arrive in San Francisco within the next half year.

The Wellman-Seaver-Morgan Co., of Cleveland, Ohio has been awarded by the U. S. Government, the contract for crane service over two ship building berths at the U. S. navy yard at Mare Island, San Francisco. This is one of the most important contracts in this line that has been placed for a long time, comprising an immense steel trestle and a powerful high-speed cantilever gantry crane mounted on same and traversing over the two berths.

The Bucyrus Co., Milwaukee, Wis., is to build for the Panama Canal Commission nineteen 70-ton steam shovels at $10,240 each or a total of $194,560. It will erect the machines, the government furnishing only the necessary unskilled labor. The Allis-Chalmers Co. submitted a net lower bid, but did not propose to pay freight charges or the cost of erecting and testing the machines. The Lidgerwood Mfg. Co., New York City, was given the contract for six 60-ton unloaders at $7,949 each, the Marion Steam Shovel Co., Marion, O., for twelve unloading plows at $900 each, and the Mann & McCann Co., Chicago, for six earth-spreaders at $23,382 for the lot. R. C. Horton, Chicago, is to build three large steel water tanks.

The steamer John Duncan is at the plant of Abram Smith & Sons, Algonac, for repairs made necessary by an encounter with heavy gales on Lake Erie.

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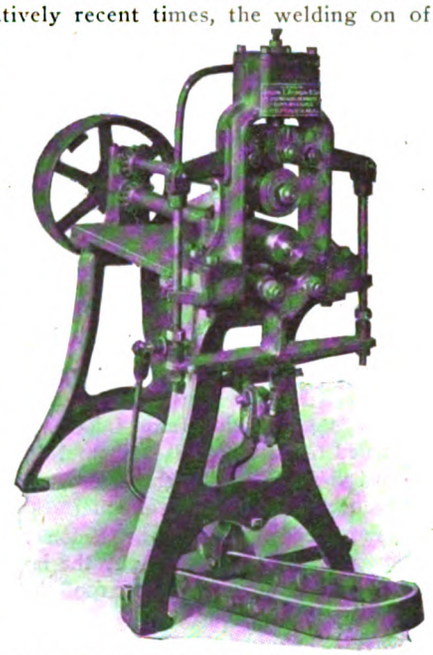
FLUE WELDING MACHINE

The practice of "piecing out" or "safe-ending" boiler tubes is almost as old as the use of iron tubes in boilers, and, until comparatively recent times, the welding on of the piece was done by hand and required no little skill, with very uncertain results as to the durability of the job. Machines for doing this work have now almost entirely superseded the more expensive hand method, and of these there are two general classes, namely those that hammer the weld and those that roll the tube, or have rollers revolving around the tube. For many reasons the hammer machines are undesirable, and those having the rollers revolve around a stationary mandrel are said to be not sufficiently powerful to make a smooth job of welding without expensive scarfing and preparation of the tube, besides being large and clumsy. There is only one make of machine in which the tube is revolved rapidly between rollers, the machine being known as the Fergusson flue welding machine, and controlled by J. T. Ryerson & Son of Chicago, Ill. It is well recognized that the best way to get uniform results in gauge and finish for either solid bars or tubes is to roll them, and this is just as true regarding the safe-ending or piecing-out, of boiler tubes. In the Fergusson machine a combination of rollers is so disposed as to bear on three points of circumference of the tube in hand, also an inner mandrel which has a rotary wiping action on the weld. One of the three rollers is larger in diameter than the other two, and is located directly above the tube, it and inner mandrel being driven by power. There is a small air or steam cylinder just above this upper roller which operates it and causes it to press hard on the tube while it is being welded; at the same time the lower rollers are automatically brought up and closed in on the periphery of the tube, keeping the gauge perfect. A valve connected to a foot lever admits the air or steam to the cylinder, all of the other functions being performed automatically. The pressure on the upper roller is sufficient to bring down the ridge where the tube ends are lapped so that the complete weld is invisible, and one would hardly believe that the tube had been welded. For this reason it is unnecessary to scarf either the tube or the tip, and the whole operation of welding is reduced to extreme simplicity. The tube is heated and "belled" out on a mandrel, the tip inserted with about 3/16 of an inch lap, and when the joint is brought to a welding heat, the machine completes the weld in less than five seconds. The mandrel and upper roller revolve at about 200 revolutions per minute and are driven by belt power. The whole machine is not much larger than a sewing machine, and weighs about 450 lbs. By placing a cutter disc on the end of the upper roller, tubes may be trimmed, or the tips cut to length cold, and very rapidly. The cylinder on this machine is only 4½ in. in diameter, and, as the stroke is never more than one inch, it will be seen that the consumption of air or steam is very small. The Fergusson machine works better when used in conjunction with an oil heating furnace, although a coke fire will give good results. When used with an oil furnace, there should be no difficulty in welding 300 tubes per day of ten hours with the machine, and it is known that a single operator has welded as many as 475 tubes in one day. Contract shops are said to have fought shy of the old-style flue welding machine, and it is with considerable satisfaction that we are now able to draw the attention of contractors to a machine destined to meet a long felt want, and one which is said to produce satisfactory results in welding tubes that will not have to be tested or cut out of the boiler on account of defective welds.



FERGUSSON FLUE-WELDING MACHINE.

FLOATING DOCK WILL GO VIA SUEZ

Washington, Nov. 7.—The chief of the Bureau of yards and docks, Navy Department, authorizes the *Review* to deny the newspaper reports sent out from Washington to the effect that the new floating dry dock Dewey, recently completed by the Maryland Steel Co., Sparrow's Point, Md., will be towed to its proposed station in the Philippines via Cape Horn rather than via the Suez canal. As a matter of fact it is all but decided that the dock will go eastward and through the Suez instead of across the Pacific. The latter route would be somewhat shorter but the necessity for long stretches in the open ocean is considered to counterbalance the slight increase in time entailed by the journey via the Atlantic and the Mediterranean.

Nor is there any foundation for the newspaper reports that the Suez canal authorities object to the passage of the dock through that waterway. Permission for its passage through the canal has virtually been obtained but terms of payment have not been agreed upon—although there is no reason to expect that they will be exorbitant—and certain questions of extra buoyage and other additional safeguards in the canal have not been adjusted.

It is stated that the dock will assuredly be towed by naval colliers, the appropriation available not being sufficient to permit of a contract being made with a private towing company even should the navy department officials deem it advisable. Three colliers will probably be detailed for this service, and it is expected that the voyage will occupy several months. Recently there has been some agitation in favor of not sending the new dock to the Philippines, but of stationing it permanently at Solomon's Island in the Chesapeake, where the official tests of the dock were conducted, and where it is argued, a naval station might be extensively used on the great lakes, and on salt water given no consideration to this scheme which is non-official throughout.

The Crandall Packing Co., of Palmyra, N. Y., for some time have been considering the question of opening an Ohio office. The increasing demands of their trade have at last forced them to establish a branch at Cleveland. They have secured a store at No. 9 South Water st., and have stocked it with one of the largest and most complete stocks of packing to be found in the city and have placed in charge Mr. John M. Chapman, who for many years has been the manager of the Cleveland branch of the Garlock Packing Co. Mr. Chapman will be glad to meet all his friends at his new location, and his many years of experience in this line bespeaks a successful outcome of this new undertaking of the Crandall people. Mr. Chapman expects to make this branch office the headquarters for the engineers in his territory and the combination of a good man and a good packing should prove a winner.

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VOL. XXXII. CLEVELAND, NOVEMBER 9, 1905. No. 19.

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FIRST MORTGAGE 5½% SERIAL GOLD BONDS

OF THE

WELLMAN-SEAVER-MORGAN CO

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Dated September 15, 1905. Coupon bonds of $1,000 each, with privilege of registration as to principal. Principal and semi-annual interest payable in Chicago at the First National Bank and in Cleveland at the office of the Trustee, The Cleveland Trust Company.

Redeemable in the reverse of their numerical order in five years, or on interest dates thereafter, on 90 days' notice, at 105 and interest.

BONDS PAYABLE

$100,000 in 1½ years, and thereafter in semi-annual installments of $40,000, retiring the entire issue in 14 years.

FINANCIAL STATEMENT

Total Assets.....$4,003,394.85
Total Indebtedness (exclusive of the bonds).....177,158.43

The Company's net assets, therefore, are nearly 3½ times the amount of the bond indebtedness.

INCOME ACCOUNT

Average annual NET earnings for the last three fiscal years.....$324,603.78

An amount sufficient to retire the entire bonded debt, both principal and interest, in less than four years.

The Company designs and builds, in all parts of the world, cement plants, ship yards, power plants, steam, electric, gas and hydraulic plants, hoisting and conveying apparatus, gas engines, smelting and refining works, and ***all machinery and equipment for every requirement of the steel and iron business,*** from the taking of the ore out of the mine, loading into vessels, unloading from vessels, converting the ore into pig iron, and the manufacture of pig iron into finished steel products of all kinds. The Company has a special department for the manufacture of disappearing gun carriages for the United States Government.

Its organization and management are unusually perfect, and its plants are considered to be the finest of their kind in the world.

The Akron branch of the Company's business has been in continuous and successful operation for 36 years.

PRICE PAR AND ACCRUED INTEREST

Circular containing full particulars of this attractive investment and also showing our experience with ***all*** of our serial bonds in the iron and steel trades will be sent promptly on request.

Peabody, Houghteling & Co.

(ESTABLISHED 1865)

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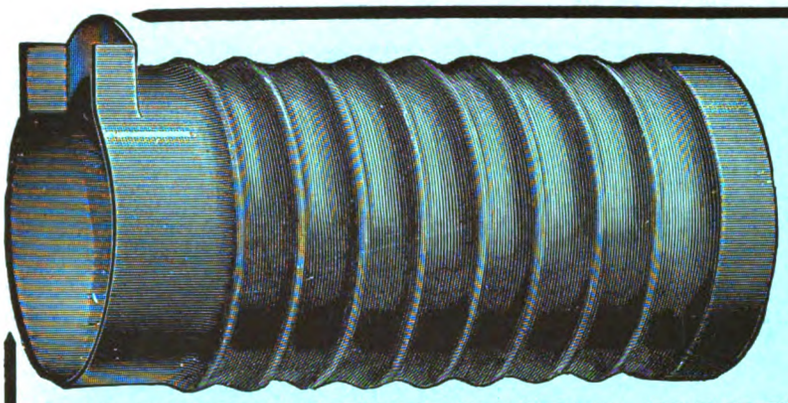

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Uniform Thickness—Easily Cleaned
UNEXCELLED FOR STRENGTH

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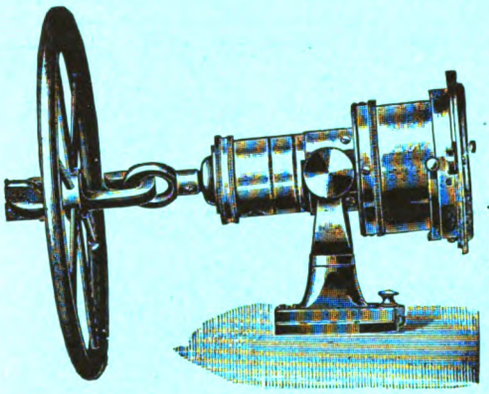

THE "NEPTUNE" LOG

The "Neptune" Ship Log has ball bearings for high speeds. We also make the "CHERUB" and "HARPOON" Ship Logs.

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Bridge Unloaders for rapidly discharging bulk cargoes from vessels directly to cars to storage on docks.

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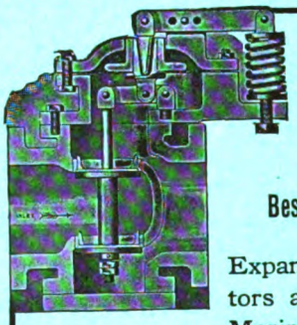

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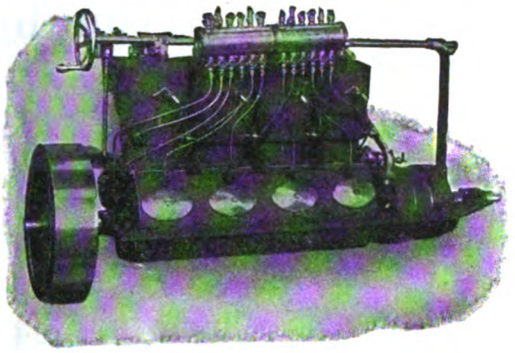

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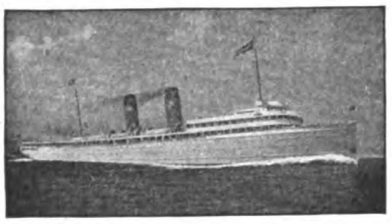

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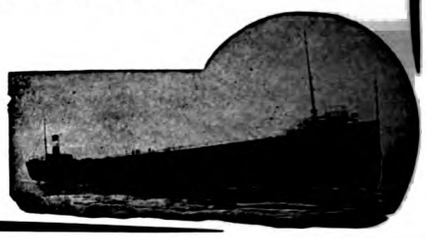

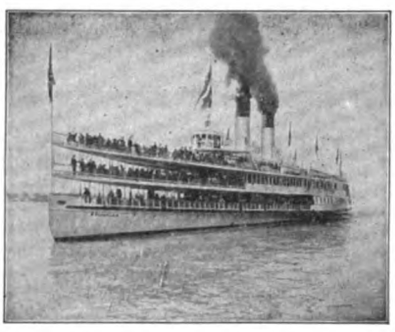

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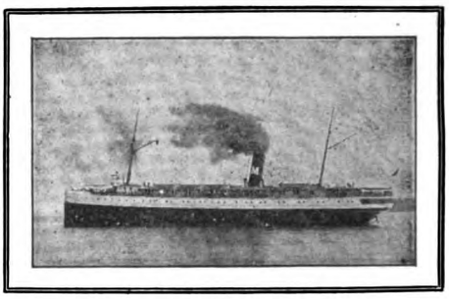

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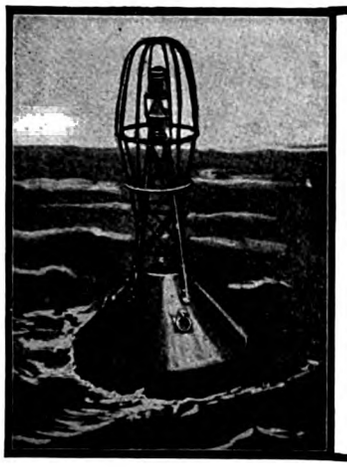

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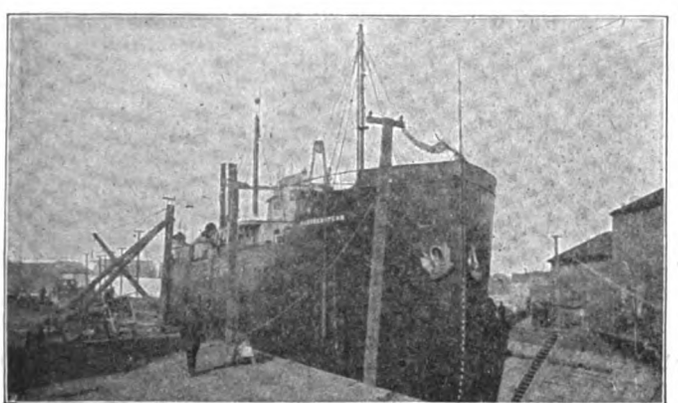

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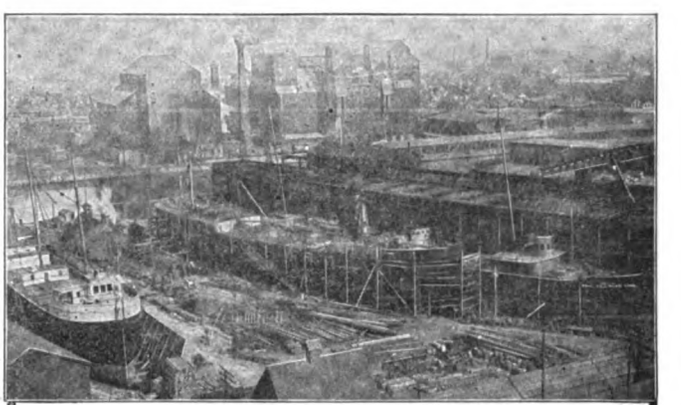

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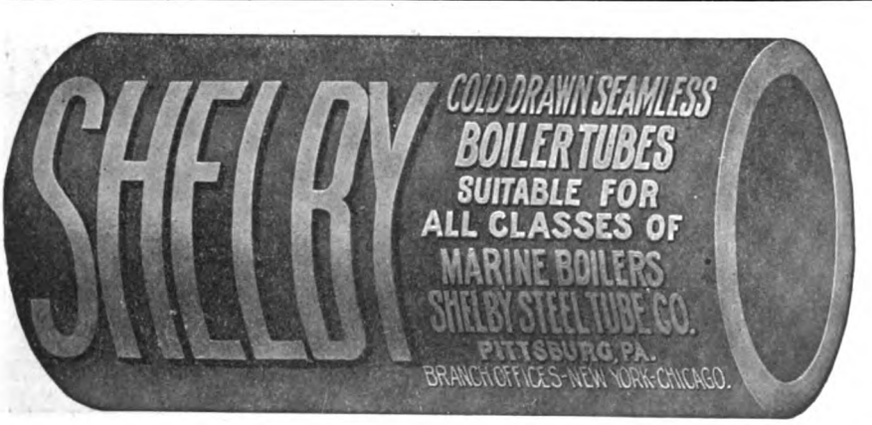

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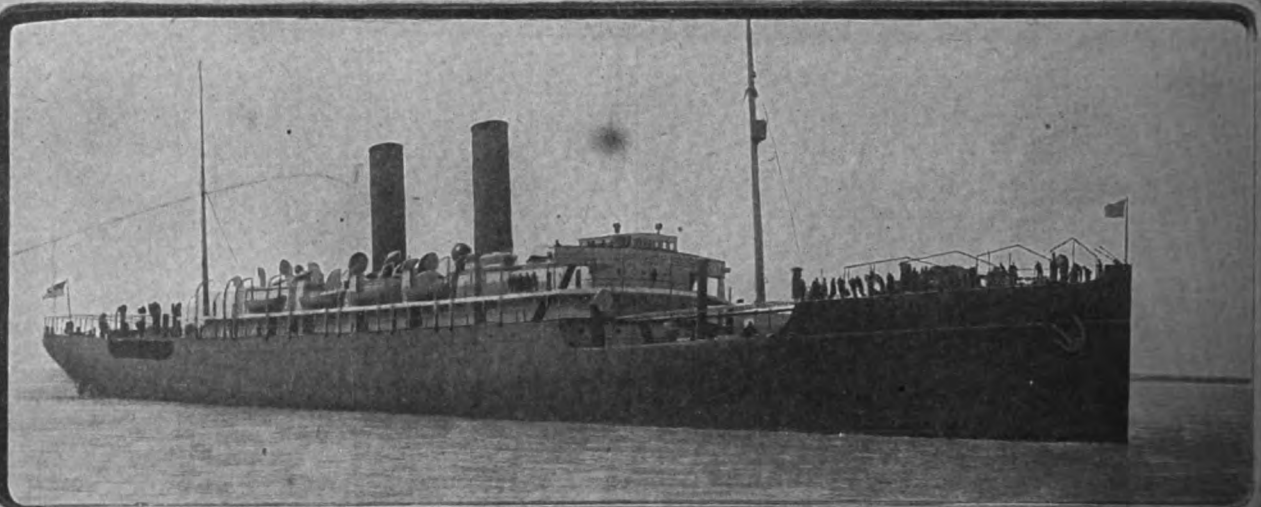

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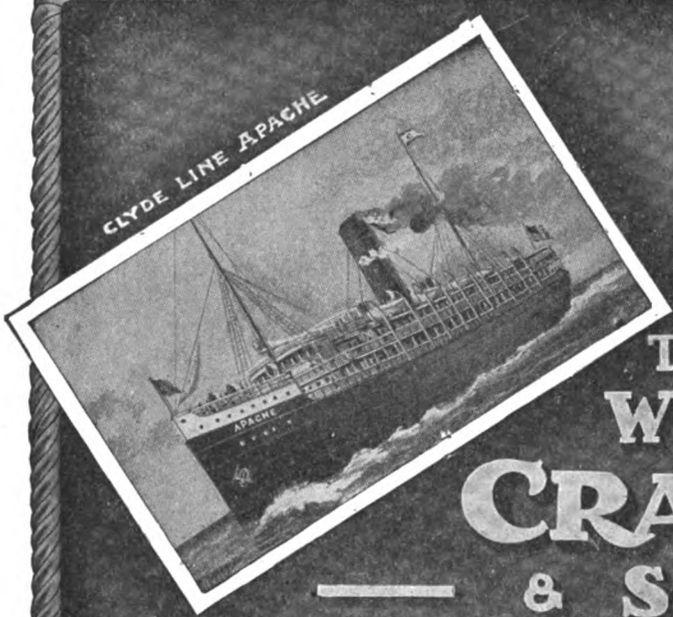

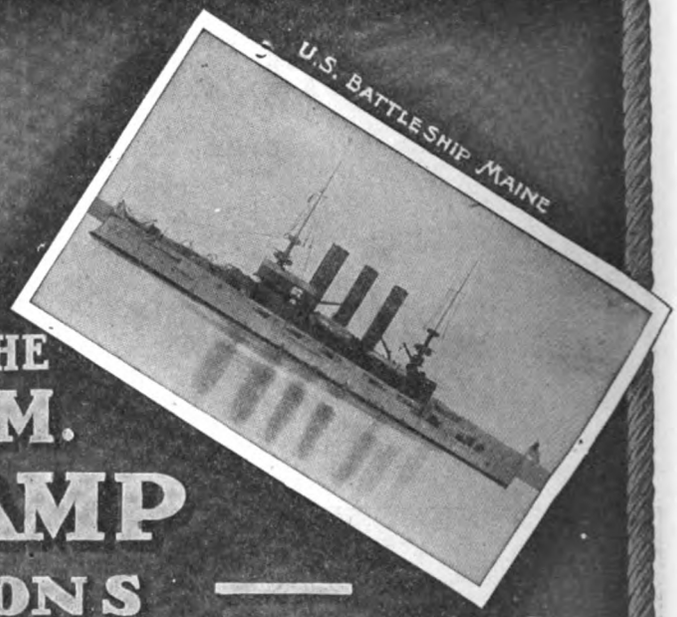

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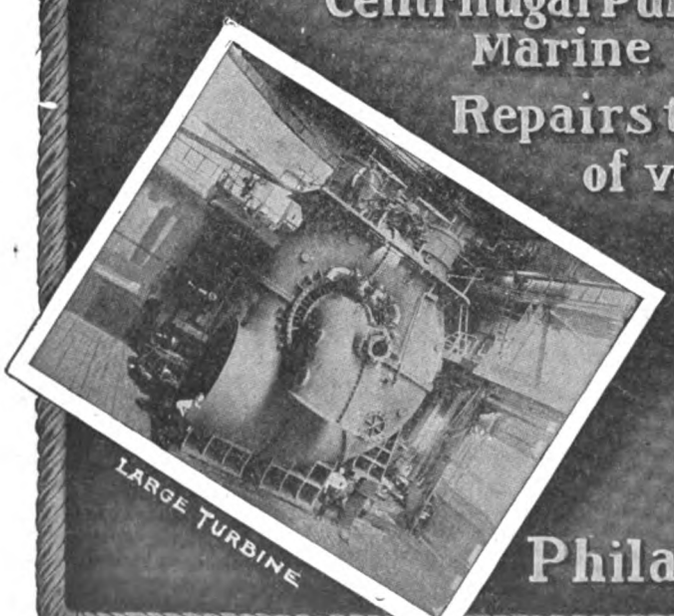

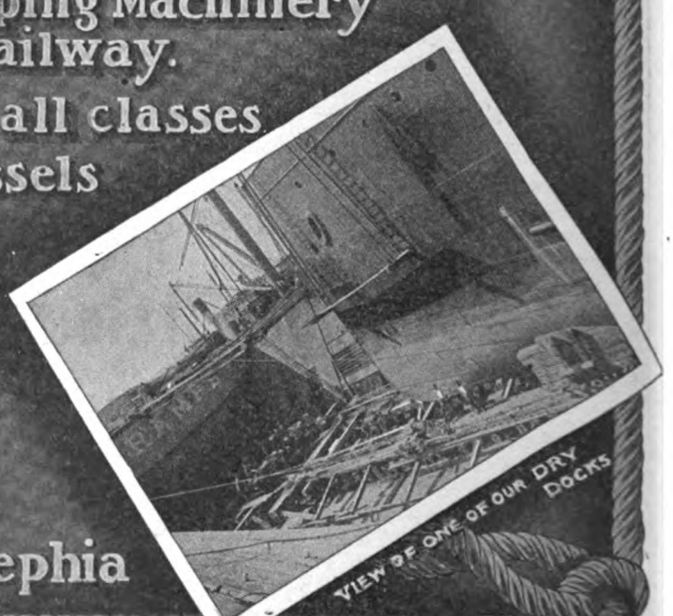

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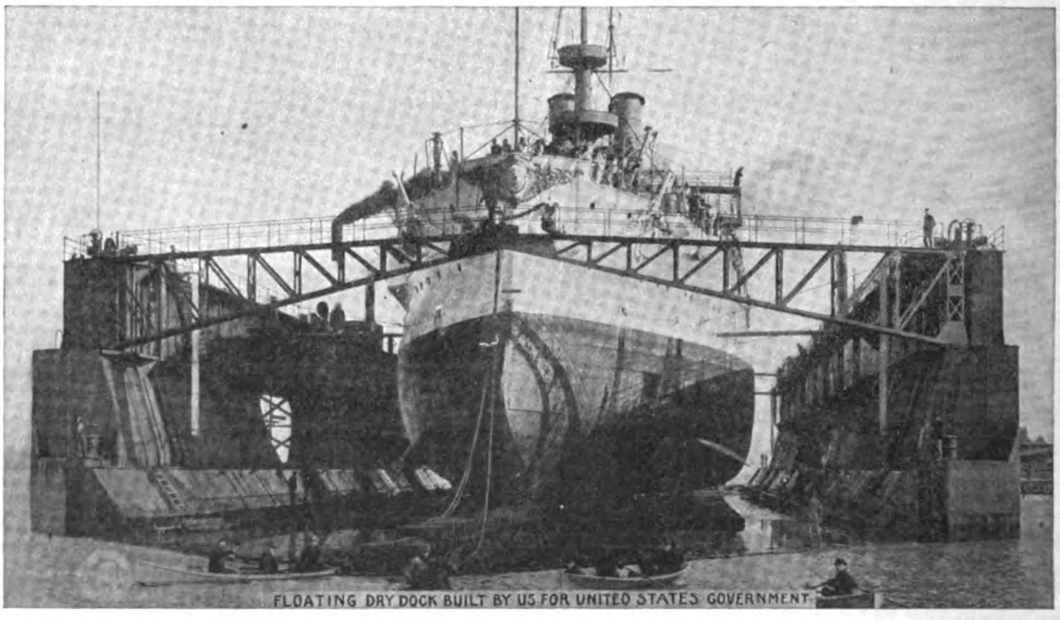

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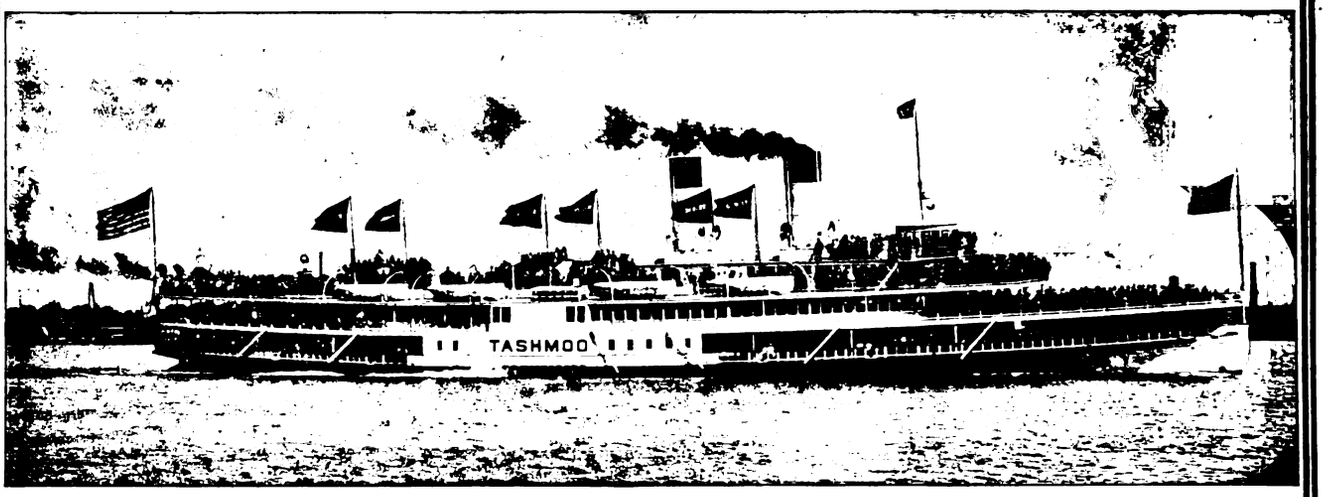

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Harvard. (On the Ways).
Harvard. (The Launch).
Harvard. (In the Slip—Two Views).
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Islander. (Thousand Islands—Three Views.)
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Majestic. (Three Views).
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Mohawk.
Montana.
W. B. Morley, wreck in Detroit River, Aug. 6, 1899.
Simon J. Murphy. (On the Ways).
Simon J. Murphy. (On the Ways—Two Views).
Simon J. Murphy, Launch. (Bow in Slip, Stern not yet in Water.)
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Tashmoo, June 9, 1900.
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Unloading Ore, two views.
Globe Iron Works Ship Yard.
Globe Iron Works Ship Yard, Laying Keel of No. 400.

CONNEAUT, O.
Harbor Entrance.
Unloading Ore—Brown Conveying Hoists, two views.
Unloading Ore—Clam Shell Plant.
Car Dumping Plant, two views.

DETROIT, MICH.
Water Front, Detroit, from Windsor—7x17 inches, Price $1.75.
Winter in Detroit River.
Car Ferry Turning in Ice, two views.
"Michigan Central" Entering Slip.
Old Timers on the Detroit River.
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DULUTH, MINN.
Great Northern Elevator.
Peavey Elevator.
Ship Canal (Looking in) two views.
Ship Canal (Looking out).
Flour Mills.
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Philadelphia & Reading Coal Docks, The Harbor.
The Bluffs.
"Last Trip from Duluth."

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A Freighter Leaving Ship Canal.
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Nightfall on the River.
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Str. James Watt Loading at S. S. Ry. Ore Docks.
Presque Isle Ore Docks.
Light House Point.
Steamer Lagonda discharging coal at S. S. Ry. Coal Docks.
Steamers at the S. S. Ry. Ore Docks.

MACKINAC, MICH.
Str. North Land at the Dock.

SAULT STE. MARIE, MICH.
Locking a Big Steamer.
Locks showing high and low level.
The Locks.
General View of Locks from Offices.
Poe Lock, from below, closed.
Poe Lock, from below, open.
Poe Lock, from above.
Poe Lock, with Whaleback.
Whaleback Str. Pathfinder in the Locks.
St. Marys River, South from the Locks.
Weitzel Lock, from above.
Weitzel Lock, from below.
Str. North Land Passing Locks, two views.
Upper Entrance to Lock Canal.
Gate Mechanism.
Interior of Power House.
Canadian Lock from Upper End.
Canadian Lock from Lower End.
Steamers Entering and Leaving Poe Locks.
The Rapids, looking up.
The Rapids, looking across.
Indians fishing in the rapids.

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Coal movement of the Great Lakes.
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Iron mining companies, Lake Superior region, addresses of mines, owners, sales agents, etc.
Iron mining industry, Lake Superior region.
Iron mining ranges of Lake Superior, map of.
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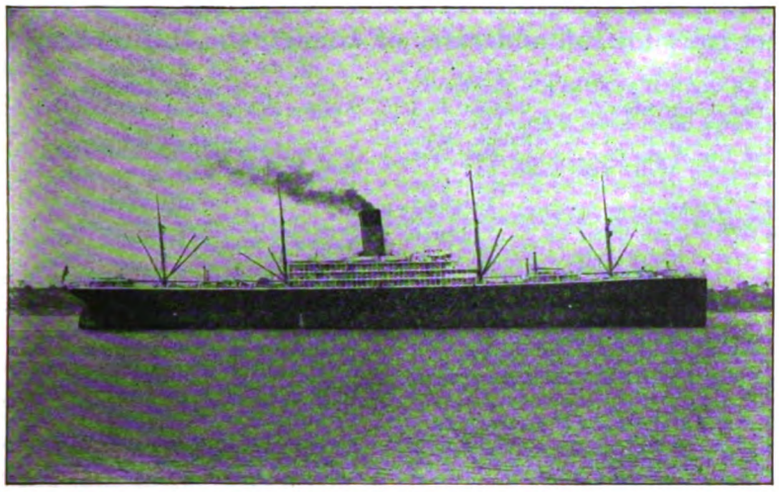

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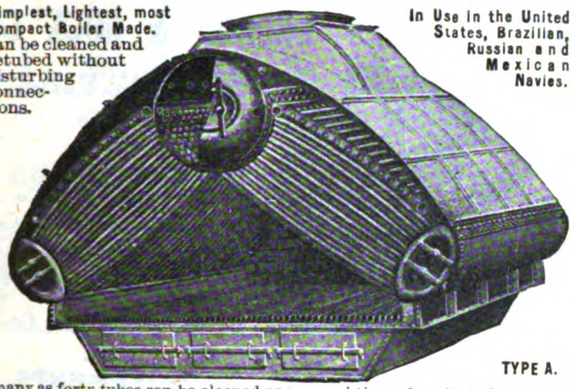

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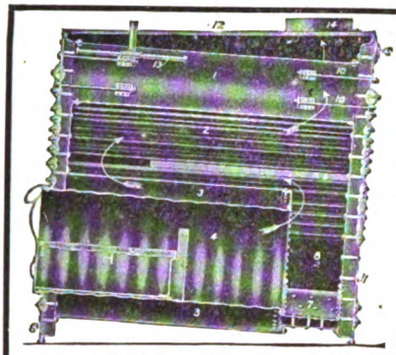

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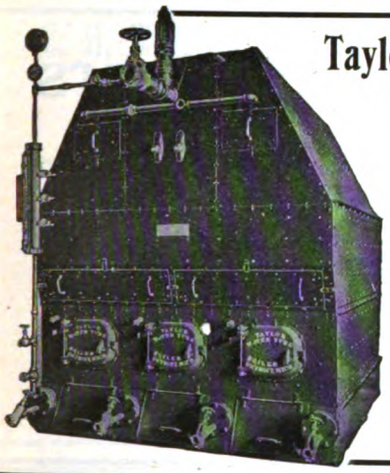

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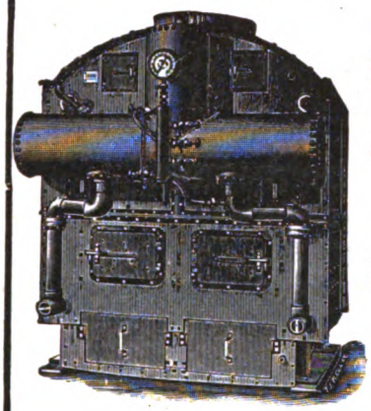

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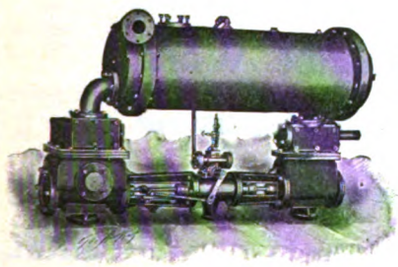

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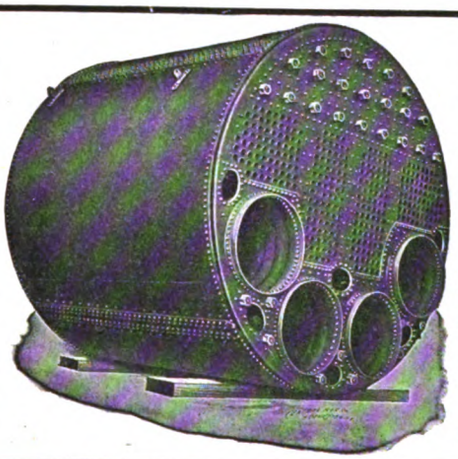

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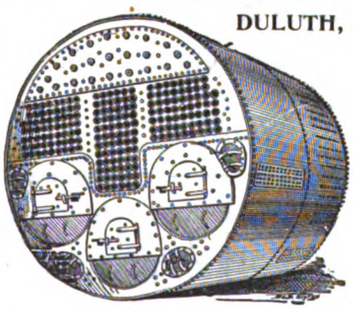

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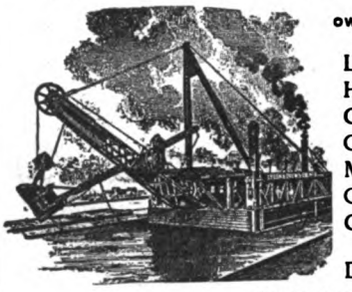

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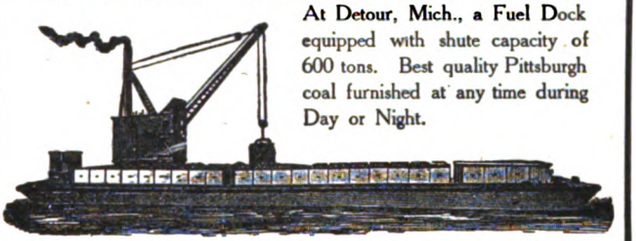

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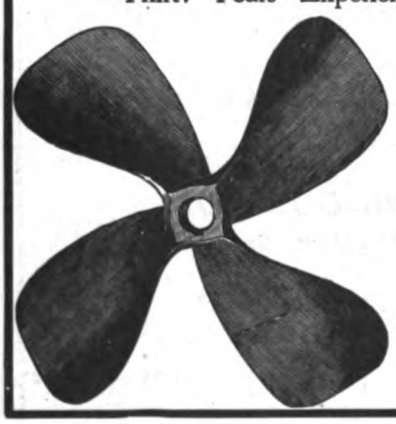

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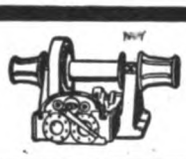

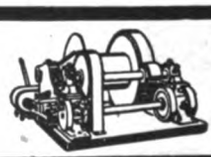

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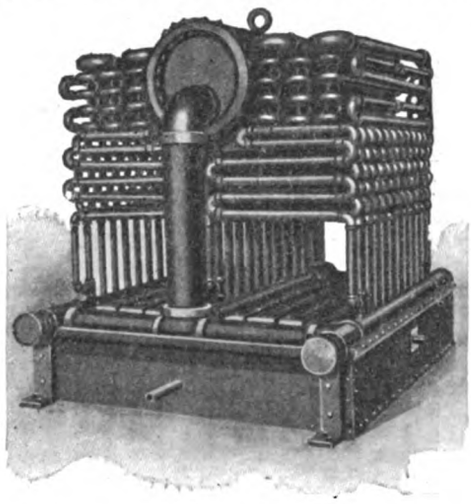

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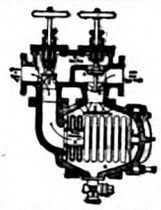

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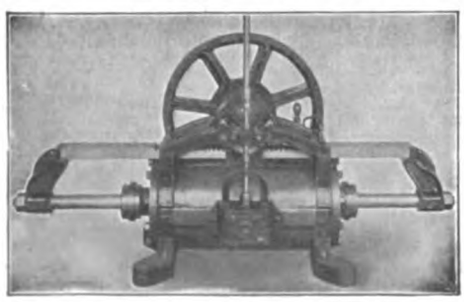

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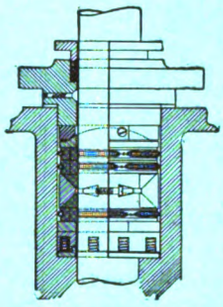

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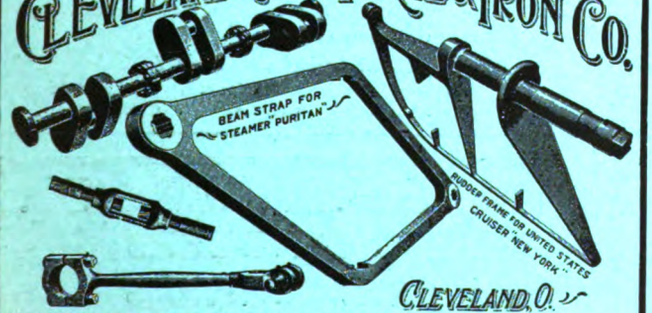

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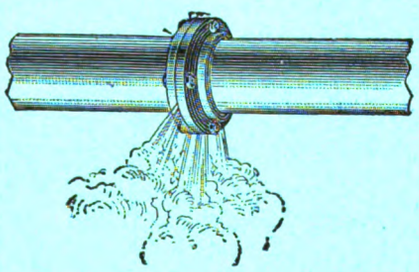

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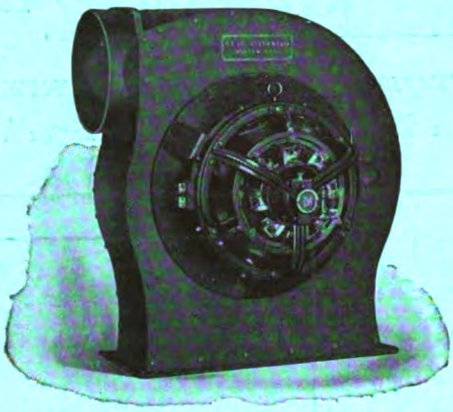

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